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CONTENTS OF VOLUME II.

ORIGINAL COMMUNICATIONS.

PAGE
A Case of Cocaine Poisoning 4
Abscess of the Antrum with Necrosis of a Portion of the Alveolar Process 25
Acute Meningitis as a Result of Nitrous Oxide Gas Administration 49
A Valuable Pivot Tooth 117
Association and Imitation 193
Address on Behalf of Graduating Class of College of Dentistry, University of California 278
Antrum (Empyema of the) and How to Treat It 242
Arthritic and Gouty Conditions, Oral Manifestations in 255
A Study of the Lateral Incisor 312
Address (Inaugural) to the California Midwinter Fair Dental Congress 317
Address (Opening) of Midwinter Fair Dental Congress 329
An Affection of the Jaws and Teeth in Locomotor Ataxia 368
Anæsthesia (Chloroform) 404
Abscess of the Incisive Fossa 408
Anchored, Adjustable and Removable Dentures 458
Aromatic Sulphuric Acid in the Treatment of Abscesses 464
A Study of the Bicuspids 503
Bicuspids, Care of the 326
Bicuspids, A Study of the 503
Collar Crown (To What Extent and Under What Conditions is the) a Cause of Pericemental Inflammation 1
Case (A) of Cocaine Poisoning 4
Care (The) of the Teeth 30
Conservation of Interdental Space 555
Corrective Dentistry: Its Present Status; What are the Simpliest Applicable Forms of Apparatus, and Most Efficient Retaining Fixtures? 54
Crown and Bridge-Work, Prudence and Gutta-Percha in 62
Crowns 118
Care of the Bicuspids 326

ORIGINAL COMMUNICATIONS—Continued.

PAGE
Composite and Combination Fillings 397
Chloroform Anæsthesia 404
Crown, Ideal Porcelain 418
Children's Teeth 511
Choice of Materials for Crowns 550
Dental Ethics 107
Dentistry, Progress of 241
Dental Practitioner, The Present and Future Status of the 278
Dental Engine (The) Applied in Surgery 366
Dentistry, Science in 349
Dentistry in Its Relations to General Medicine 355
Dentures, Anchored, Adjustable and Removable 458
Duty and Progress 493
Empyema of the Antrum and How to Treat It 242
Extent of Recuperation in Dental Tissues 557
Filling Root-Canals 111
How to Induce Our Children to Cleanse Their Teeth Regularly 554
Hypnotic Suggestion as an Obtundant and Sedative 5
Inaugural Address to the California Midwinter Fair Dental Congress 317
Ideal Porcelain Crown 418
Immediate (The) Root-Filling 410
Oral Manifestations in Arthritic and Gouty Conditions 255
Orthodontia 545
Loop Anchorage in Gold Fillings 541
Prudence and Gutta-Percha in Crown and Bridge-Work 62
Progress of Dentistry 241
Present (The) and Future Status of the Dental Practitioner 278
Persistent Vitality 290
Pyorrhea Alveolaris 301
Practical Suggestions 445
Pathology (The) and Successful Treatment of Periodonteal and Endodonteal Tumors, Commonly Known as Alveolar Abscess and Fungus Growth of the Pulp 451
Refining Gold 58, 102, 145
Some Thoughts on the Proposed Midwinter Fair Dental Congress 126
Study (A) of the Lateral Incisor 312
Sheaths (The) of Neumann and Their Contents 323
To What Extent and Under What Conditions is the Collar Crown a Cause of Pericemental Inflammation? 1
Therapeutics of Glycozone, Composition and Characteristics 27
The Care of the Teeth 30
The Dentist: His Relations to His Patients and to His Brother Practitioners 564
Tin Foil for Filling Teeth 71
Technics of Operative Dentistry 97
Teeth (The) of Our School Children; What Can be Done to Save Them? 271

TRANSLATION.

Dental Affections During the Course of Tabes (by Drs. Lemarie and Bernard) 196

SELECTIONS.

A Good Root-Filling 218
A Year's Experience with Three New Remedies 481
Action of Arsenious Acid on Tooth-Pulps 482
Beeswax and Root-Canals 218
Black Rubber 219
Care of Children's Teeth 219
Combining Rubber Filings with Fresh Rubber 217
Copper Amalgam 219
Dental Excerpts and Formulas (Items) 483–486

SELECTIONS—Continued.

PAGE
Enamel for Dentures 216
Gold Fillings in Children's Teeth 219
Implantation of Decalcified Teeth 488
Leaving the Canals Open 220
Magnesium Hydrate 216
Masseter Test 204
Necessity of Early Surgical Interference in Malignant Growths 383
Nitrate of Silver 219
On Coagulants in the Treatment of the Pulp-Chamber and Canals 145
Pain 172
Pyorrhea Alveolaris 206
Relative to Immediate Root-Filling and a Few Items Concerning the Management of Teeth with Pulps Dead Before Treatment 164
The Defect in the Dentist 218
Tincture Capsici 220
To Prevent Nausea in Taking Impressions 220

REPORTS OF SOCIETY MEETINGS.

Alumni College of Dentistry 245, 297
American Medical Association 241
American Dental Association 441
American Dental Society in Europe 442
Arizona Dental Association 185
California State Dental Association 437
California State Board of Dental Examiners 86, 260, 337, 382, 435
College of Dentistry Commencement Exercises 246
Committeemen Dine 85
Dental Mass Meeting 129
Delta Sigma Delta Fraternity Entertainment 574
Leek *versus* Leek 132
Maryland State and Washington City Societies 228
Midwinter Fair Dental Congress 37, 81, 128, 186, 229, 253, 265, 268, 277, 289, 332, 337, 415, 468
Midwinter Fair Dental Congress—Daily Programme 247, 261, 267, 284, 298
Midwinter Fair Dental Club 189
National Association of Dental Examiners 338
Nevada State Dental Association 568
Oakland Dental Club 86, 185, 227, 479, 587
Ohio State Dental Society 92
Oregon State Dental Association 437, 479
Portland Dental Society 220
Sacramento Dental Society 86, 132
San Francisco Dental Association 181, 186, 516, 568
San Francisco Dental Club 381, 433, 479
Southern California Odontological Society 90, 587
Stomatological Club of California (S. F. Dental Club) 528, 569
World's Columbian Dental Congress 31

CORRESPONDENCE.

A Case of Replantation 282
A Correction 139
American Medical Association 188, 190
Aristol in Dental Practice 589
Card—W. J. Younger 540
Chloride of Zinc Mouth-Wash 340
Correction 389
Death from Blood-Poisoning Resulting from a Dental Operation 487
Meeting of the American Dental Association 339
Trichloracetic Acid 567
Where Ignorance is Folly, 'Tis Blissful to be Wise 389

MISCELLANY.

PAGE
" The Horseshoe On the Door" 92

EDITORIAL.

A Midwinter Fair Dental Club 41
A Year Old 250
Another Name 443
An Opportunity for Excursionists 286
Alumni Association Annual Meeting 236
American Medical Association, Oral Section 255, 249
Apology 345
A New Dental Journal 580
Brevities: Transactions of the California State Dental Association.——The "Pacific Medical Journal."——The "Western Dental Journal."——"Pacific Medical Sentinel."——"Dental Register," Please Correct.——Dentists Must Do Jury Duty in Missouri 94-95
Chemical Nomenclature 538
Dental Examiners' Report 490
Dental Hygiene 390
Eastern Dental Journals and the Midwinter Fair Dental Congress 98
"Intellectual California" 398
In Review (1894) 575
Medical Department, University of California, Graduates 538
Miscellaneous Notes 251, 262, 285, 298, 299
Personals: Prof. Truman W. Brophy.——Dr. C. L. Goddard.——Dr. Daniel B. Freeman.——Dr. J. N. Crouse.——Correction 95
Resigns the Editorial Chair 93
San Francisco Wants the A. D. A. Next Time 344
Serious 42
Speaking of Advertising 234
Suggested Action Upon an Important Paper 286
The Programme Committee's Work 238
The Journal of the American Medical Association 288
The College of Dentistry Display at the Midwinter Fair 299
The Congress 342
The Dental Club 344
The Leek Case 488, 578
The Dental Protective Association of the United States 186
The Daily Press 184
The General Medical Council of England 94
The Midwinter Fair Dental Congress 43, 237
To the National Association of Dental Examiners 577
Welcome 248

OBITUARY.

Dr. Lorenzo A. Varney 341
Dr. John S. Moore 388
Dr. Richard Bayly Winder 444

NOTICES.

American Dental Association Meeting 289
California State Board of Dental Examiners—Annual Meeting 287
Chicago College of Dental Surgery—Commencement 263
Colorado State Board of Dental Examiners 240
Colorado State Dental Association 289
Delta Sigma Delta Banquet 252
Northwestern University Dental School—Commencement 268
Removal Notice—Dr. Joseph D. Hodgen 188
The Odontological Society of Pennsylvania—Meeting 252
The American Dental Society of Europe 249
Washington State Dental Society 289

BOOK NOTICES.

PAGE
Appointment Book 45
A Partial System of Dental Nomenclature 240
Catching's Compendium of Practical Dentistry..................................45, 140
Descriptive Anatomy of the Human Teeth.—Black.. 581
Dental Records... . 192
Journals Received 140
Pamphlets Received........... ....141, 582
The Anatomy and Pathology of the Teeth.—Bödecker.............................. 580
The Etiology of Osseous Deformities of the Head, Face, Jaws and Teeth.......... 240
The Monthly Bulletin of the Connecticut State Dental Association............... 240
The Effects of Exercise Upon the Teeth.. 492
The Philosophy of Eating and Drinking from a Medical Standpoint, with Personal Experience.. 492
What Has Dentistry to Demonstrate Against the Hypothesis of Organic Evolution?... 492

KALEIDOSCOPIC.

A Curious Accident 96
A Test for Cocaine in Local Anæsthetics........................ 492
Care of the Tooth-Brush....... 276
Connecticut Dental Law 46
Curative Treatment of Tic-Douloureux... 141
Dentition and Some of Its Diseases 143
Dental Law of Utah.................. 346
Extensive Alveolar Abscess................................ 264
Fatal Cocaine Poisoning 348
For the Teeth.. 95
How to Silver Glass 300
Illinois State Dental Examiners 45
Kansas City Dental College—Commencement... 141
Plaster of Paris 264
Prescription for Disguising the Odor of Iodoform.................................. 96
Rubiform 48
They Say 348
The Treatment of Typhoid Fever 394
The Ohio College of Dental Surgery 192
What Kalium-Natrium Is.. 288

PUBLISHER'S NOTICES.

Daily Edition.............. ....44, 345
Horlick's Food Company 287
Subscribe for Pacific Coast Dentist........................ 287
McKesson & Robbins 275
To Our Advertisers 582

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ORIGINAL COMMUNICATIONS.

TO WHAT EXTENT AND UNDER WHAT CONDITIONS IS THE COLLAR-CROWN A CAUSE OF PERICEMENTAL INFLAMMATION?

BY PROF. C. L. GODDARD, A.M., D.D.S., SAN FRANCISCO.

[Read before the San Francisco Dental Association.]

THE extent of the inflammation caused by the collar-crown varies from none at all to sufficient to cause absorption of the walls of the socket and loss of the root. We can see cases in all stages between these two. The first will be marked by a slight redness at the gum margin *not* accompanied by pain. A stage further advanced will be shown by increased redness and swelling of the gum margins, and tenderness of the tooth to percussion. We use the term "tenderness of the tooth," from habit, when we mean tenderness of the peridental membrane, from compression between the root and the walls of the alveolus. This condition may be accompanied by a slight extending of the tooth from the socket.

The next stage will be an aggravated continuation in which, perhaps, the whole peridental membrane is involved, and the tooth more noticeably pushed out of its socket by the membrane thickened in the process of inflammation. In this stage the tenderness may be so great as to prevent use of the tooth and

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even of the other teeth adjoining by preventing their occlusion.

In these stages the amount of tenderness may depend on the shape of the root. If the root has parallel sides for most of its length, and the inflammation extends no farther than the sides are parallel, there will be no pain produced by force brought to bear in a direct line with the long axis of the tooth, but only by a force exerted laterally. In this condition the tooth may still be very useful.

If, however, the root is cone-shaped, that is, if it tapers all the way from the gum margin to the apex, it is clear that any force applied in the line of the long axis of the root will compress the inflamed peridental membrane, and cause pain much greater than that caused by lateral force, because the muscles of mastication enable greater force to be brought to bear in that direction. The last stages of the wasting away of the socket and consequent extreme looseness of the tooth, will be accompanied by more or less complete loss of usefulness from the tooth moving so much as to fail to masticate, even if there was not sufficient tenderness to prevent its use. This wasting away of the walls of the alveolus may continue till the peridental membrane has entirely disappeared and the tooth or root drops for want of attachment.

Still further, in answer to the question, to what extent will inflammation be caused by the collar-crown ? we may say that if the collar-crown is properly fitted it will cause no more inflammation than a well-fitted crown without a collar, and not nearly so much as a collarless crown badly fitted, for manifestly if a collarless crown be fitted so that it projects on any or all sides of a root—that is, if the base of a crown be larger than the root, and these projecting edges be left sharp and angular—it will cause inflammation; or, if the base of a crown is smaller than the base of a root, so that the root projects laterally, its sharp corners or edges will naturally cause inflammation of the gum tissue which may grow over them. This inflammation may extend to the peridental membrane, or, if the root and base of the crown be of the same size, yet imperfectly fitted to each other so that gum tissue will project between, it will be inflamed by the sharp edges over which it extends; or, if this space be filled with cement, gutta-percha or amalgam, which is allowed to protrude from the joint, this will cause inflammation.

"Under what conditions is the collar-crown a cause of pericemental inflammation?" This is simply answered by saying, by "misfit;" for we have misfit collars as well as misfit clothing. As most roots are conical in shape, and the collar must be pushed on over the large end, it is evident that the further a collar is pushed the greater will be the misfit, the more the collar will impinge on surrounding tissues, and the greater will be the inflammation. If the collar-crown be a whole gold crown slipped over the contour sides of a natural crown it will be much larger than the root at the cervical margin, and will not fit at all, but will impinge upon the gum tissue, in the endeavor to push it under the gum line. The collar itself will irritate, and the root will be filled with food particles or other deleterious substances with mucus or saliva, which, degenerating or decomposing, will aid in banishing inflammation.

Secondly, even if the sides of the root or root and crown be parallel, either by nature or by trimming, and the band be extended too far under the gum line, it will itself impinge upon the peridental membrane and cause inflammation. This may ensue from not adapting or trimming the upper edge of the collar to the contour of the gum line, and, in the endeavor to fit the collar, just under the edge of the lingual, buccal or labial portion of the gum, the proximal portion of the collar may be pushed up too far, as in normal conditions the alveolar process and peridental membrane are more prominent or extend nearer the end of the root between the teeth than on the other surfaces.

Thirdly, even if the band is reasonably well-fitted upon a root or tooth, already slightly loose, its constant movement on the tissues during use of the tooth may cause inflammation. A tooth or root may be slightly loose and yet be sufficiently firm to warrant its being crowned, in which case the collar may be extended only to, and not under, the gum line; or, in case of a gold crown, may stop considerably short of the gum line and yet be so perfectly fitted and its edges so nicely beveled as not to be a cause of injury.

You will notice that our subject, in the form of a question, does not inquire for a remedy, yet if it did our only answer would be to fit the collar properly; which means to fit it so as not to cause inflammation. The fit may not be perfect, for it is not always possible to make a perfect fit, and yet, in many cases, no injury will be done. For Atkinson told us long ago that there is no tissue of the human body that will stand so much abuse as the peridental membrane.

A CASE OF COCAINE POISONING.

BY W. B. SHERMAN, D.D.S., SAN FRANCISCO.

MISS C., presented for extraction of right upper third molar. One-half grain of cocaine was dissolved in fifteen drops of a one-per cent. aqueous solution of phenic acid, and one-half of this liquid was injected buccally, and the remaining half into the palatal gum. Before a half minute had elapsed the patient had lost consciousness, and, within a like time, rigidity of the whole muscular system seemed complete, so much so, that any working of the respiratory muscles was imperceptible and death from suffocation seemed imminent. A hypodermic injection of ether was made at once, as the heart had become reduced to 45, and following this, a like injection was made of aromatic spirits of ammonia. Galvanism was made use of at once, the positive pole being placed upon the side of the neck, and the negative upon the leg above the knee, as it was impossible to reach the unciform cartilage, owing to the hands and arms being in a state of rigidity over that part. The opening and closing of the current produced the desired artificial respiration, but within a minute after its application also produced intense spasmodic and inordinate action of all of the muscles, so much so, that the patient was placed upon the floor for safety. Both the respiration and circulation improved however. The muscular spasms increased both in length of duration and violence, and great exertion was necessary to prevent self-inflicted injury to face and eyes. The pupils remained normal. It was deemed advisable to use morphine, and an injection was made of the usual amount with atropia. The contractions continued up to three hours after giving the morphia and then gradually decreased in number and length until the patient came from without the influence of the narcotic. Great depression resulted, with a confused state of the mind for three or four hours, after which a rapid restoration to normality was had. Artificial respiration was necessary during the narcotic sleep, the chest movements being imperceptible many times.

The amount of cocaine introduced into the system equaled fifteen miniums of a two per cent. solution, a very moderate dose. The patient had been and was in good health, of a strongly bilious temperament, with nervous attributes markedly wanting. Mention is made of the small dose, the celerity of action and the severity of results.

HYPNOTIC SUGGESTION AS AN OBTUNDENT AND SEDATIVE.

BY THOMAS FILLEBROWN, M.D., D.M.D., BOSTON.

[Read before the General Session of the World's Columbian Dental Congress.]

IT HAS fallen to my lot, I believe, to first observe that suggestions made to a patient during the wakeful state and during the light degrees of hypnotic sleep are sufficient to produce insensibility in dentine, and also the first to demonstrate its application to the practice of dentistry. Many years ago it was demonstrated that in the very deep hypnosis which obtains with a very small percentage of patients, the anesthesia was sufficient to operate on sensitive dentine without pain to the patient, to extract teeth, and to preform minor and major surgical operations without the patent's knowledge. But I know of no record that suggested anesthesia during light hypnosis which leaves the consciousness unaffected and the mind alert have ever been made useful and available as a dental obtundent. In March, 1892, I accomplished this, and in April announced the discovery to the American Academy of Dental Science, Boston, and in the following June I read a paper upon the subject before the Massachusetts Dental Society which was subsequently published in the *Dental Review*, September, 1892.

For thirty years I have been familiar with the remedial effects of hypnotic suggestion, and was fully convinced that hypnotism would be eventually made valuable for use in dentistry, but it was not until I had made Bernheim's Suggestive Therapeutics an object of thorough study and reflection that the way opened for me to apply it for this purpose. My successful results were a joyful surprise to me, and have proved a great solace and relief to my patients since. And with me it is at the present time a well-recognized resource of relief for hypersensitive patients and a reliable obtundent for sensitive dentine. By its use I have rendered painfully sensitive dentine anesthetic and formed the cavity to my full satisfaction, all the while the patient being fully conscious of all that was going on and fully realizing the obtunding effect of the suggestion.

The sedative effects of suggestion have also proved most salutary and efficient, and in most cases relieving the patient entirely of the terror which is so often the greatest hinderance to a successful operation. Patients who for years have been unable to sit in a dental chair have had their fears removed, and repeated operations performed without suffering, and at the close of each sitting have left the chair in a better condition, mentally and physically, than after the previous visit. A case in my practice this spring well illustrates the sedative and assuring effect of hypnotic suggestion.

A lady about fifty years old, had, when a young girl, a pulp exposed, and her dentist had sought to remove it by immediate operation without any obtundent. The shock nearly paralyzed her. She said that for a few moments she thought she was dead. Since then she has suffered such terror that it has been almost impossible for her to have any dentistry done, being ill after every visit to her dentist. Consequently she had lost many teeth, and needed much crown and bridge-work, and also several fillings. Knowing of my success with suggestion, she came five hundred miles to experience its benefits. She sat down in my operating-chair dejected, depressed, terror-stricken, her extremities cold. Cold perspiration was standing out on her forehead, and her pulse rapid and weak. I hypnotized her in the first degree, and suggested relief, and in five minutes all fears were removed, her physical functions were restored to their normal condition, and she was enjoying a sense of comfort, and able to bear the grinding of teeth with a corundumdisk without disturbance; and by successive repetitions of the hypnosis and suggestions she was able to occupy my chair over twenty-one hours within six days and improve each day, and on her return was able, as she wrote to a friend, "to at once answer her accumulated correspondence, instead of going to bed as usual after a dental operation."

At one sitting she wished me to examine a tooth. As it was pulpless and not sore, I thought to examine it without hypnotic suggestion; but, as I had not suggested as to this special tooth, her old terror returned and she was utterly unable to let me proceed. I hypnotized and suggested relief, and her fear was gone, and I completed the examination without trouble.

One other case illustrates the lasting effect of suggestion over fears of more recent origin.

A young lady, twenty-two years old, had, a few weeks before her visit to me, undergone an attempt made to extract a tooth. The operator did not succeed in removing the tooth, but persisted in his efforts until the patient was partially unconscious. The result was a state of great fear, which nearly disabled her during the day, and rendered much sleep at night impossible. As soon as she would fall asleep the horror of some one wrenching at her tooth would bring her sitting upright in bed. She persisted she never could have her teeth touched again, or again take an anesthetic. Her sister finally persuaded her to see me, promising that I should do nothing without her asking. I talked with her awhile, when she consented to be hypnotized. She hypnotized quite deeply—memory gone. I suggested removal of fears and a willingness to take some ether, and absence of any dread of the extraction of the tooth. In five minutes I woke her, and immediately after answering me a question said, "I will take the ether." I immediately prepared the ether-sponge, hypnotized her again, and suggested comfort during the inhaling of the ether. I carefully administered it while she was still hypnotized. She did not seem to experience the slightest discomfort. I extracted the tooth readily, and the patient recovered without terror or distress. Before I discharged her, I hypnotized her again, and suggested good sleep without dreams or fears for the coming night. She returned home, and during the night and next morning enjoyed a peaceful, restful sleep of twelve hours, waking only once during that time. She was hypnotized again the next day, and good sleep undisturbed by terror of dreams has been her experience ever since.

The following illustrates the effects of suggestion upon another class of cases. A married lady, about thirty-five years old, has been a sufferer for many years with rheumatism, and is consequently considerably reduced in physical strength; her nervous system has suffered especially. Her teeth have been extremely sensitive; consequently without any special or sudden shock she had come to find it impossible to have any dental operations performed, and for two years her teeth had been entirely neglected. She came to me last autumn, hoping for relief. She sat down in my operating-chair in a state of great trepidation, trembling and perspiring. She was too much excited for me to attempt to even partially hypnotize. I simply placed my hand on her forehead and requested her to close her eyes, and then audibly suggested quiet, rest, absence of fear, and confidence. In five minutes she was entirely calm and quiet. I here further suggested anesthesia of the teeth, and was able to excavate two cavities and fill with gold at this sitting, and a number more at subsequent sittings. At the close of the last sitting, the patient was in a very much better condition than at the close of the first visit.

This patient I was unable to hypnotize by aid of fixation of the gaze, but by the repetition of the method first employed I was able to produce a suggestible condition that maintained anesthesia of the teeth and a state of comfort for the patient, and "a complete feeling of I don't care," as she expressed it.

As I have longer practiced hypnotizing patients; I find a larger number who are better and more deeply affected by this method, and I am inclined to think that the fixation of the gaze which is so much depended on will cease to be considered so essential as at present.

These three cases are typical; they are especially favorable and among my most successful. Still, I have a large number equally so to keep them company. Suggestion is not a "cure-all." Some patients cannot be made suggestible. The teeth of some patients who are hypnotized cannot be anesthetized. One patient I have is a lad of fifteen. He hypnotizes to a state of deep somnambulism every time; the loss of memory is so complete that he has never remembered anything that I have said or done during the hypnosis, and feels exultant that he has had his dentistry done without suffering. Still I have been unable to render the dentine scarcely less sensitive apparently than when awake, and he shrinks nearly as much. This case is entirely exceptional.

While suggestion is not of universal application, yet summing up the favorable effects of the sensitiveness of the dentine and the very favorable sedative influence on the nervous system, it proves for me the most efficient dental obtundent that it has been my privilege to try. In my paper referred to, I reported an analysis of twenty-one cases showing my success. My subsequent experience has fully corroborated this favorable showing. The number of patients was twenty-one; one failed to hypnotize, consequently the summary applies to twenty patients. In every case I proved that the teeth were very sensitive. Hypnotic suggestion applied thirty-eight times to twenty patients. Full anesthesia of the dentine obtained twenty-one times for eight persons, or forty per cent. of the whole number of patients. Anesthesia of dentine not quite complete, but practically successful, twelve times for seven patients, being thirty-seven per cent. of the whole number of patients. Anesthesia completed with local obtundents six times to five patients, or twenty-five per cent. of the patients.

I had successfully applied suggestion once for removal of necrosed bone, five times for extracting teeth, one tooth at each operation. Once for operation on alveolar abscess. For removal of dread of taking gas, twice, once successful and once unsuccessful. I have many times and uniformly since removed all dread of anesthesia, and also prevented the nervous fear that is likely to obtain when waking up.

It is impossible to indicate in any table all the benefit that accrued to the patient from hypnotism. In every case there was almost complete, and in some cases, entire relaxation of nervous and muscular tension, so that the patient rested during the operation instead of being exhausted. Almost every person left my operating-chair saying that he felt better than when he sat down. I always suggest that the patient is resting, will wake up freshened, and this result usually follows. If by chance a different result obtains, I at once hypnotize again and correct the error. This has occurred in a few instances, but thus far I have not failed to relieve the discomfort.

Another distinct gain has been described by several patients independently, viz: When any pain is felt, it is sensed only at the point of contact with the instrument, and not over the whole system as is generally the case. If a tooth is extracted, there is no dread felt before the operation nor shock produced by it, only a little twinge felt the instant the tooth is being pulled. A worthy Scotchman expressed himself to the point after having a tooth extracted under hypnotism, "I rather think it helped me; it kind of reconciled me down to it."

The operation for necrosis mentioned was for a patient whose nervous system was much broken down; any excitement from sorrow, fear, or joy would invariably cause her several hours of nervous excitement and distress, entirely disabling her at the time. The hypnosis prevented any unfavorable results from the operation. I do not presume to rely on suggestion as an anesthetic for the extraction of teeth. I occasionally try it for one single tooth, and if the patient willingly opens the mouth and submits to the operation, I feel sure of success. I have never tried it for more than one tooth at a time.

The Caucasian race in the temperate zone does not seem to hypnotize as deeply nor accept the suggestion as implicitly as do the Eastern races of the torrid zone. Still I find many patients suggestible without any attempt at hypnosis, so that by simply verbally assuring the patient that the dentine is anesthetized, it can be cut without the patient suffering. By the same means fears will be removed, the palpitating heart stilled, and a feeling of repose and quiet made to succeed a storm of excitement. In one case I reduced the pulse twelve beats in less than three minutes, and removed just as quickly what seemed insuperable fear of an anesthetic. This is only a repetition of similar experiences of other hypnotists; it is only utilizing one of the elements of the human mind which has come to be well understood by all students of mental philosophy. The power to use this agency of suggestions either in a wakeful or hypnotic state is not, as may be supposed, confined to a few, nor is it any special gift; it is one of the faculties of the mind, and much in the same sense as is the mechanical, mathematical, literary or artistic ability.

The average man can become a capable hypnotist, and at least three-fourths of the practitioners of dentistry may by proper study and application make it exceedingly useful. I had occasion recently to instruct some young dentists in the art of hypnotizing; six sat down, two at a time as subjects, and another six became operators. Four of the operators were entirely successful, and fully hypnotized their subjects. The last two failed of complete success for lack of time, which caused a hurried feeling which is inimical to any approach to the hypnotic condition. Any one of good understanding and of fair ability can use the elements of suggestion in a form taught by the Philosophy of Repose or the so-called devitalizing process. Several of my patients have attained to the power of auto-hypnotization by the practice of those methods, and have rendered their dental operations completely painless. Also some of my professional friends have found themselves able to give their patients great relief by suggesting this method while operating on their teeth.

There is no fear among patients or operators to prevent the practice of this, and it will eventually prepare the way for the more potent suggestion under the hypnotic condition. At present, prejudice and fear begotten of ignorance and misinformation prevent the dental profession from obtaining the benefits following the use of hypnotic suggestion. Consequently it is fortunate so much benefit can be obtained by the less-pronounced forms which commend themselves to the most timid.

The fancied dangers attending hypnosis have a great influence in preventing its use. The real dangers are few and wholly avoidable. Liebault says, " The accidents in hypnotism are wholly due to the ignorance or giddy tricks of the operator." And Moll affirms, " It is insufficient technical knowledge that is dangerous, not hypnotism. Hypnotism properly used is as harmless as electricity properly used." No danger or ill effect ever accompanied or followed its administration by a reasonably competent and honest operator.

The condition itself is not in the least dangerous. The patient is put into a quiet sleep, being light or deep as the susceptibility of the subject may determine. The patient is comfortable and resting, and if left alone will usually in fifteen or twenty minutes wake spontaneously as from natural sleep. The hypnosis wears out. The patient may feel drowsy for some time longer, but soon returns to the former condition of wakefulness, but the quiet, calming influence of the hypnosis is sure to remain.

No sensible man will deny that harm may be done with hypnotic suggestion. There is "nothing good under the sun" which may not do harm or become evil by misuse. The commonest blessings of air, water and warmth become in the tempest, the flood and the conflagration the greatest evils. Nutritious food becomes a bane to the overloaded stomach, and heat and moisture produce a pestilence from the bounteous products of the soil.

Anesthesia often produces direful results, yet it is a wonderful blessing, so like Juliet's wine that,

> "Through all thy veins shall run
> A cold and drowsy humor, which shall seize
> Each vital spirit; for no pulse shall keep
> His natural progress, but surcease to beat;
> No warmth, no breath, shall testify thou liv'st;
> The roses in thy lips and cheeks shall fade
> To paly ashes; thine eyes' windows fall,
> Like death when he shuts up the day of life;
> Each part, deprived of supple government,
> Shall stiff, and stark and cold appear like death;
> And in this borrow'd likeness of shrunk death
> Thou shalt remain full two and forty hours,
> And then awake as from a pleasant sleep."

In predisposed cases chloroform, ether and gas have caused sickness, insanity and death. Yet every surgeon uses them, and every patient expects and desires them. Opium and alcohol are also dangerous, a thousand times more dangerous than suggestion. They do their evil when used for good purposes by innocent and well-intentioned persons, and have usually done their work before the victim or physician is aware of it; but hypnotism can do no harm unless the ill result is carefully planned and knowingly and deliberately brought about. An operator that could do this is basely vile, and can hardly be found in any branch of the medical profession.

Suggestion will cure headache, and will also cause it. Suggestion will relieve tonic contraction of the muscles, and it will also cause spasms of the same organs. Suggestion will stimulate to elevating thoughts and mental activity, and it will induce mental inactivity and excite debasing imagination. It has been said hypnotism ought not to be used until better understood. Upon that premise no man could think another thought. For there is no understanding of even how a thought is produced, nor do we understand any mental process; we only know what we observe of the mental phenomena.

No competent operator need have any fear for himself or his patient. Average ability, fair knowledge of the subject, and honesty are sufficient safeguards for both the operator and his patients. It is said the rash, foolish and unprincipled may abuse it. True. But this is all the more reason why the conservative, wise and high-minded physician should snatch it from such unworthy hands.

I do not believe in letting the devil have a monopoly of all the valuable things in this life.

Not many years ago anesthetics were used to make ludicrous exhibitions of persons for public entertainments; yet no one on that account refuses to use them to assuage the agonies of a painful operation.

The rash, foolish and unprincipled have used hypnotism for many years, and to-day use it to make amusing and profitable entertaintments; but this no reason why suffering humanity should be denied the blessing of the remedial effects of this wonderful curative agency. To me it is a wonder that fifty ago scientific men should have been so blind as to have given it over so completely into the hands of the unprincipled and uneducated classes.

While it is true that extreme cases have been found where control was obtained and violence done to the subject, it must be remembered that the patients in every case know what is said and what is done, and also what they do. In a few cases only the memory does not bridge over from the hypnotic condition to the wakeful state, or the conscious self does not take sufficient cognizance of what is said and done to retain the impression. Now, as the somnambulistic state obtains in hardly one patient in ten, it would require a hardihood beyond compare or an ignorance beyond conception to presume upon it.

The propriety of witnesses being present when the operator and patient are of the opposite sex, no one will question; but the necessity of it is greatly exaggerated. Nearly ninety per cent of the patients are protected by their exalted perception and full consciousness, and the rest by the utmost certainty of being aroused by any suggestions against their convictions. In the exceptional cases, the operator needs the witnesses for his own protection against designing patients, rather than the patient against him.

It is generally considered that hypnotism is not the best name for the suggestible condition which we are considering, but it has become so firmly fixed that it is useless to attempt any change or substitution.

Generally persons do not sleep in the ordinary sense of being unconscious, as in sleep at night. In the hypnotic condition the patients are fully conscious, their faculties are keenly alive, and their perceptions more acute than when in their usual wakeful state. Still the conditions of the nervous system are radically different.

We have said hypnotism is a misnomer, yet no one has suggested a better name. We call it sleep to induce it, and we call it sleep to continue it, and we call on the patient to wake when we wish to terminate it; hence it must be considered sleep, though in most cases not inappropriately conscious sleep. It has the quality of sleep.

The induction of hypnosis is a simple and easy matter. I use the method which has proved so successful with the Nancy school, and described substantially as follows by Bernheim:

" When I have banished from the patient's mind the idea of hypnotism and the somewhat mysterious fear that attaches to that unknown condition, above all when he has seen patients cured or benefited by the means in question, he is no longer suspicious, but gives himself up. Then I say, 'Look at me and think of nothing but sleep. Your eyelids begin to feel heavy, your eyes are tired. They begin to wink, they are getting moist, you cannot see distinctly. They are closed.' Some patients close their eyes and are asleep immediately. With others, I have to repeat, lay more stress on what I say, and even make gestures. It makes little difference what sort of gesture is made. I hold two fingers of my right hand before the patient's eyes and ask him to look at them, or pass both hands before his eyes, or persuade him to fix his eyes upon mine, endeavoring at the same time to concentrate his attention upon the idea of sleep. I say, 'Your lids are closing, you cannot open them again. Your arms feel heavy, so do your legs. You cannot feel anything. Your hands are motionless. You see nothing, you are going to sleep, and I add in a commanding tone 'Sleep.' This word often turns the balance. The eyes close, and the patient sleeps or is at least influenced."

Many persons, as above stated, are influenced at the very first seance, others not until the second or third. After being hypnotized once or twice, they are speedily influenced. It is often enough to look at patients, to spread the fingers before the eyes, to say, "Sleep!" and in a second or two, sometimes instantly, the eyes close and all the phenomena of sleep are present. It is only after a certain number of seances, generally a small number, that the patient acquires the aptitude for going to sleep quickly.

Some people can be hypnotized with chloroform before they are really under its influence. All surgeons have seen patients go to sleep suddenly without any period of excitement, after a few breaths of the anesthetic, and before it certainly has done its work. In some cases the hypnotic sleep thus comes before the anesthesia. If it is deep enough to cause complete anesthesia, as I have seen it, the operation can be performed without delay; if not, I keep on giving chloroform until the anesthesia is complete, which takes place more rapidly because aided by suggestion. By acting in this manner I also prevent the period of excitement in these cases.

It is wrong to believe that the subjects influenced are all weak-nerved, weak-brained, hysterical, or women. Most of my observations relate to men, whom I have chosen on purpose to controvert this belief. Without doubt, impressionability varies. Common people, those of gentle disposition, old soldiers, artisans, people accustomed to passive obedience, have seemed to me, as well as M. Liebault, more ready to receive the suggestion than preoccupied people, and those who often unconsciously oppose a certain mental resistance. The idea of being hyynotized must be present; the patient must submit entirely to the hypnotizer, using no cerebral resistance; then, I repeat, experience shows that a very large majority of people are easily influenced.

I have, I believe, verified all the phenomena observed by Bernheim as to symptoms of hypnosis, and nearly all of his variations of methods including it. I, myself, use my eyes more for a fixed point for the patient's gaze than the fingers. I find it more agreeable to the patient. It seems to them more sensible, and unless the operator is likely to be hypnotized himself it is, I think, the better. Laying my hand on the forehead and over the eyes to close them, and exclude the light, is very successful with me and much preferred by many, and very often is more effectual. In these cases audible suggestion is used, same as in others.

I find the fixation of the gaze much less necessary than formerly, and now by no means essential. The awaking from the hypnotic sleep may be instantaneous. In my experience the patient will wake up from light sleep any time when I leave him for a moment, unless I particularly suggest a continuance of the sleep; but the majority of subjects left to themselves sleep on for several minutes, for a half-hour or even one or more hours, when the sleep will terminate spontaneously.

For most patients the simple suggestion "Wake up" is quite sufficient to terminate the condition. Occasionally it may need to be repeated perhaps a little more emphatically. If the arousing is sluggish, fanning or blowing on the face is useful, with the command "Wake up" repeated. A slight shock, or a slap on the arm, will quicken the termination of the condition. No hypnotist of good technical knowledge has ever had any difficulty in arousing the patient from the hypnosis at will.

An important question for dentists is: How to maintain the hypnosis and induce the anesthesia of the dentine while operating on the teeth.

I have found that all writers upon the subject, as far as I could learn, state that pain would always wake the patient from the hypnotic sleep, unless such patient was in a somnambulistic condition. I felt it might be possible to derive distinct benefit in the lighter stages if they could be kept continuous. I soon believed it possible, and after diligent study I commenced to hypnotize, and my first effort proved a success, the patient reaching the second stage. And then I made the discovery that continuous suggestion makes it possible to keep a patient hypnotized, and the dentine wholly or partially anesthetized for a full preparation of the cavity during the light sleep of the first and second degrees. I am not aware that this has ever been made successful before.

I maintain the hypnosis and the anesthesia by a constant repetition of "Sleep, sleep; you are resting, you are not suffering, you are not dreading it, you do not care for it, sleep, sleep," and so on continuously as long as the condition is desired. It is practically a continual rehypnotizing to offset the continual waking caused by the cut of the instrument.

Sometimes the hypnosis will wear out in spite of continual suggestion, especially if the operator's attention is too wholly absorbed in the operation, and his suggestions become weak. In such a case I stop and hypnotize again. I have hypnotized as many as six times at one sitting.

If the sitting is long and the hypnosis deep, the patients are likely to get tired, and I have found it better to wake them up at intervals for rest, or suggest a change of position, but the waking is much better. By making this conservative use of hypnotism, the patient in every instance will feel rested and stronger at the close of the sitting than before, and will improve in courage and quiet as the sittings succeed each other, and in many cases the need of hypnotism will cease to exist and the patient submit to the operation in the wakeful state without shirking.

I had a case lately that illustrated it. A girl fourteen years old had feared dental operations so much that for two years she has not been able to have her teeth even cleansed. Hypnotism made cleansing, preparing and filling easy, and at the fourth sitting she had become so indifferent that she was quite willing to have a large cavity in a molar prepared and filled while fully awake. Others have experienced the same benefit.

These results have, it seems to me, proved that in my hands hypnotic suggestion as a sedative and as an obtundent, is a marked success; and I believe equal and greater success may be achieved by many other operators when they make intelligent effort to accomplish this desired end.

The physiology of any mental state or mental action is but little understood beyond a familiarity with the phenomena displayed. We are no better nor worse off with the hypnotic condition. The phenomena of hypnotism has been observed scientifically for more than one hundred years, and many facts established.

Mesmer, in 1778, announced the discovery of producing this condition at will, and announced his theory of animal magnetism.

In 1841 Dr. James Braid described this mesmeric state, and called it hypnotism, and placed the subject on a truly scientific basis, and definitely established the fact that suggestion was the sole cause of the condition.

Braid proved that no magnetic fluid exists, and that no mysterious force emanates from the hypnotizer. He further proved that the hypnotic state and its associated phenomena are purely subjective in their origin; and this origin is in the nervous system of the subject himself.

Braid's suggestions were based upon the expectancy of the patient; hence there was less certainty of benefit than exists at the present time.

In 1860 Dr. Liebault, of Nancy, commenced the use of hypnotism, and soon discovered that audible suggestions addressed to the patient heightened the effect and made the results more uniform and certain.

This is now almost the universal practice. It seems established that hypnosis is entirely free from danger, and its effects upon the patient if left undisturbed are the same as ordinary sleep.

The great essential feature of hypnotism is not sleep, but a heightened receptivity of suggestions with or without sleep; in other words, any suggestion offered to a person during hypnosis has an exaggerated effect on the mind. But up to a certaint point, that of lethargy, the deeper the sleep the greater the effect of the suggestion.

In hypnosis the power to imitate any volition is in abeyance. The mind will be directed from the old channels and follow a new line of thought; it will exert its physiological force as directed by the operator.

The mind seems to become non-resistant, and old thoughts are held in abeyance, and new thoughts are suggested and received to hold control, so that sometimes during a single hypnosis a condition directly opposite that to which previously existed may gain permanent control. Courage may succeed fear, rest replace fatigue, and sweet natural sleep come to the patient instead of wakeful hours of restlessness.

Liebault's idea is that "ordinary sleep does not differ from hypnotic sleep. The one is, like the other, due to the fixation of the attention and of the nervous force upon the idea of sleep. The individual who wishes to sleep isolates his senses, meditates, and remains motionless. The nervous force concentrates itself, so to speak, at one point of the brain upon a single idea, and abandons the nerves of sensation, motion, and special sense.

"But the ordinary sleeper is in relation with himself only, and as soon as consciousness is lost, the impressions conducted to his brain by the nerves of sensibility, or of organic life may awaken diverse memory-sensations or images which constitute dreams. These dreams are spontaneous, that is to say, suggested by himself.

"The hypnotized subject falls asleep, with his thoughts fixed, in relationship with the hypnotizer; hence the possibility of the suggestion of dreams, ideas and acts, by this foreign will."

I close this part of the subject with a statement of the theory of Despine, which seems to me founded upon clinical observations. "There exists," says this author, "an automatic cerebral activity which manifests itself without the occurrence of the ego; for all nervous centers possess in accordance with the laws which govern their activity an intelligent power, without any ego, and without personality. In certain pathological cerebral states the psychical faculties may manifest themselves in the absence of the ego, of the mind, of consciousness, and may give rise to acts similar to those which normally are manifested through the agency of the ego. This is automatic cerebral activity. That which manifests the ego, on the contrary, is conscious cerebral activity. In the normal condition, these two activities are intimately bound together, they are but one, and always manifest themselves conjointly; in certain pathological states they may be separated and act alone. Hypnotism is characterized physiologically by the exercise of the automatic activity of the brain during the paralysis of its conscious activity."

That you may see my progress in the art of hypnotism, and better understand the anesthetic effects of hypnotic suggestions, I give the following description of cases in my practice in the order in which they followed each other:

Case 1.—In 1892, my first attempt to hypnotize for dental purpose was Miss L., age twenty-two, to remove a pulp after arsenic application. She hypnotized in about one minute to the first degree; very light sleep. I suggested anesthesia of tooth and pulp. It lessened the pain very much; but I could not overcome all the sensitiveness of the pulp, nor have I been able to do so since in any case. A month later I hypnotized and suggested for relief of toothache and restfulness, as she was very weary. I woke her in five minutes, and found her toothache gone and herself feeling entirely rested and refreshed.

Case 2.—Mrs. L., aged thirty-six. I induced only very slight sleep. I suggested for anesthesia of sensitive dentine. The pain during the previous operation was almost unbearable. They relieved sensibility very much. It made the cutting of two cavities on buccal surface of inferior bicuspids with both excavator and bur very easily borne. The suggestion did not last long, and hypnosis and suggestion had to be repeated several times.

Case 3.—Miss C., aged fifty. The patient was suffering from necrosis from abscess on right superior incisor. Her upper teeth had been all extracted five months before. The patient had nervous collapse seven years before, and has since suffered repeated attacks. Any excitement of sorrow, or joy, or fear, or a pleasant hour with callers, would bring on a nervous spasm which would last one or two hours. Ether had an unpleasant effect upon her, and she preferred the operation without an anesthetic, on account of nervousness. I hypnotized her to the first degree, bordering on the second; I also applied cocaine to the gum; I then incised and removed a section of the gum; trephined the alveolar wall and removed spiculæ of dead bone. The operation lasted from seven to ten minutes. The patient lay quietly, scarcely flinching, her dread all gone, and upon waking up she pronounced herself comfortable during the operation, suffering no shock, depression, or weakness.

I did not think to suggest against subsequent pain, and some pain persisted in region of the wound, also in her temple and ear of same side. I hypnotized her the second time, and relieved the pain in wound and face. I waited twenty minutes, thinking the rest of the pain would subside; but the pain in her ear persisted. I hypnotized her the third time, and suggestion relieved the pain entirely, and the patient, left my office feeling in very much better condition than before the operation. I saw her six days after; she had been getting along well, the wound was healing well and her nervous condition good; had some neuralgia of the head, face, arm, and hand. I hypnotized her, and suggestion relieved the pain entirely. Three days after this she had had no return of pain in the arm or hand, had suffered a little pain in the head. Hypnosis and suggestion relieved it again completely. At 4:30 called again. She had been very busy during the day out in the wind, and tic of right temple had returned and involved the eyes. I hypnotized twice, and completely relieved the trouble. The patient left town the next day, but subsequently I saw her and found relief from the pain proved permanent, also the general good effects of the hypnotism continued.

Case 4.—Mrs. P., aged forty-five. Right superior first molar abscessed. The crisis was past, but the tooth was very sore, the dead pulp remaining. The tooth needed drilling for removal of pulp. The patient dreaded the operation very much; she did not sleep the night before on account of it, and had a bad headache and neuralgic pains over the entire system. She hypnotized to the second degree; her dread was entirely gone. She suffered scarcely any during the operation; she was very comfortable and did not mind it at all; her systemic pain was also cured. I filled her tooth temporarily and hypnotized again, and suggested recovery without further trouble.

Four days after, I found her tooth in good condition, and filled it permanently; I hypnotized, and suggested for continued health of tooth and system. The tooth has since remained well.

Case 5.—Prof. O., aged thirty-five. Right inferior first molar needed to be extracted, as it was very badly abscessed. I hypnotized him to the first degree, and suggested that pain of extraction would be lessened, his dread removed, and shock prevented. The result fulfilled the prophecy.

Two weeks later he had a right superior bicuspid root which he had wished out for ten years, but could not get up his courage. I hypnotized to note the effect on his mind; he soon opened his mouth without dread; I extracted the tooth; he said he felt no pain, only a little wrenching sensation, which was only local. He called it perfectly successful.

At another sitting I excavated and filled the right inferior lateral and cuspid; these were very tender indeed. I hypnotized him, and suggestion relieved sensitiveness very much, and with a local obtundent added I made the anesthesia complete. The patient said the pain was only local; did not disturb the system. He found it a great relief.

Case 6.—Dr. P., dentist, aged thirty-four. I filled for him a right superior cuspid, labial cavity, exquisitely tender. He was unable to bear the finger nail on it. I hypnotized him to the second degree, light; suggestion made the anesthesia of the dentine almost complete; the nervous and muscular relaxation was entire. I used excavator freely, and burred with engine all around the cavity, and in twenty minutes from the time he sat in my chair the cavity was prepared. He found it a complete success. I subsequently filled for him a right superior cuspid, mesial cavity, not tender; I did not hypnotize him at first. When the tooth was nearly filled, he said he felt broken up and was very much disturbed. I hypnotized him: suggestion made him immedialely quiet and entirely relieved his discomfort.

Case 7.—Master G., aged ten. The patient was very sensitive and it was very uncomfortable for himself and all concerned. He hypnotized to the first degree, very light. It quieted him a good deal, and made it possible to do a little, but my success was indifferent,—largely due, I think, to lack of interest on the patient's part, whose mother had little faith in it. I hypnotized him for three sittings with about the same success.

Case 8.—Mrs. W., aged forty-three. Filled right inferior first molar, very sensitive. This patient was always very much disturbed by prospect and performance of dental operations. She hypnotized readily to the first degree, but full influence could be maintained but a little time. A drowsy feeling persisted; all dread of operation was gone; I used bur and chisel without resistance or suffering on her part. She thought it a complete success.

A week after I hypnotized her with same process as before

I could not completely anesthetize the dentine, but the addition of a little alcoholic vapor completed the insensibility.

Case 9.—Mrs. C., aged twenty-nine. Condition, hypnotism, and success the same as last case.

Case 10.—Miss. H., is a lady about forty. Her teeth have been always very sensitive, and for twenty years she has been troubled with insomnia; she was very nervous, excitable, and apprehensive. Her teeth were in bad condition, owing to neglect on account of fear and pain. She hypnotized to the third degree, somnambulistic. I suggested anesthesia of dentine, which was complete. I operated April 9, 12, 21, and May 7 and 16. Hypnotic suggestion at each sitting.

May 28, I gave her a short hypnosis at the beginning of the sitting, and one at the end, operating in the meantime on a post-hypnotic anesthesia which was complete. This method gave relief and comfort; some of the former hypnoses had proved wearisome. The incidental benefits derived from the treatment were very marked. Up to date of her first sitting she had often been obliged to take some hypnotic to afford sleep. The night after her first hypnosis in the afternoon, she slept all night and far into the morning, and every night since, except three or four that she had some face-ache. Her general condition is much improved, apprehensiveness much less, and nervousness much reduced, and has much better command of herself. Her improvement has persisted up to the present time (July 1, 1893).

Case 11.—Mr. M., aged thirty-two. Teeth very sensitive. Hypnotized to the third degree; suggestion made; anesthesia of the dentine complete. Operated from an hour to an hour and a half at each sitting. At the close of the longer sittings he complained of feeling tired sitting so still; he thought an hour long enough.

Case 12.—Miss P., aged fourteen. A refined, healthy, vigorous girl, but so afraid of dentistry that she had not been able to to have teeth cleaned for two years. Her teeth are extremely sensitive. She called upon my promise that I would not touch her teeth. I talked hypnotism to her, interested her, and made an appointment to try it and operate.

May 28, I hypnotized her to the first degree. Suggestion removed all fear, and I cleansed her teeth without any trouble, and prepared and filled with cement two cavities in the front teeth.

June 11, I hypnotized her again; prepared and filled with cement four cavities in front teeth. While excavating one of the cavities she flinched some. I feared discouraging her, and waked her and asked her if I should go ahead if it did hurt a little; she said, "I don't care; go ahead!" I hypnotized her again, and finished according to instructions.

June 17, I hypnotized her twice; excavated three cavities and filled with gold; I used bur with engine without discomfort to the patient.

June 18, I hypnotized and prepared one tooth, waked the patient and filled it; then prepared and filled another molar while she was awake. The transformation was wonderful.

Case 13.—Miss L., aged forty-two. She called on me in December, 1891, for a new upper plate. She had been wearing artificial teeth on rubber for three years. Her mouth had been constantly red, with severe itching and burning. I made her a good-fitting plate on rubber, but her mouth was no better. A few weeks later I made a gold plate, which she has worn since. It gave no relief from the burning, and the redness persisted.

June 23, 1892, she called, seeking relief. I proposed hypnotic suggestion as an experiment. She was agreeable to it. I hypnotized her nearly to second degree. Suggested cessation of burning and change of color and return to health. She slept perhaps ten minutes. On waking the mouth had changed color perceptibly, the burning had gone.

June 24. She has experienced discomfort only about one hour the evening of the 23d, and again that morning about the same length of time. I hypnotized her again, and suggested for health and comfort.

June 25. She has experienced a little discomfort once for a short time since yesterday. Mouth still better. I suggested for complete recovery. I did not see the patient again until the 29th, four days intervening. Has had hardly any burning of the mouth since her last visit until to-day, rather more. Mouth seems much improved in color and texture. Hypnotized, and suggested for relief and cure.

June 30, mouth much better; no discomfort since yesterday.

Hypnotized also on July 1, 6, 7, 8, 14 and 21. July 22, her mouth has felt entirely well since June 30 ; it is now normal in color save two small patches which are a little red, but not at all tender or uncomfortable. The patient has worn her plate all the time during the treatment.

These cases fairly represent the extremes and average of the results in my practice of the application of hypnotism to dentistry. I believe it is a power of great value to my patients, and may be to the patients of other operators who practice it.

ABSCESS OF THE ANTRUM WITH NECROSIS OF A PORTION OF THE ALVEOLAR PROCESS.

BY J. W. LIKENS,
Class of '94, College of Dentistry, University of California.

THE patient, a girl, aged ten and a-half years, frail and in poor general condition, but with no tubercular or syphiltic history, was brought to me at my home in Carson, Nevada, the fifteenth of last June, with the following history :

Twelve months previous she had suffered with odontoliga in the superior right second premolar. This being followed by the ordinary manifestations of alveolar abscess. She being of a frail constitution and the tissues having but feeble resisting power, it was not long till the alveolar process began to be necrosed involving the antrum of Highmore. The tumification of the right cheek had never disappeared, and, when first seen by me, closed the right eye, extended into the forehead, and partially closed the left. There was an opening of a sinus beneath the right orbit, directly over the maxillary process of the bone that very much resembled a furunculus. This had appeared early in May, having discharged twice, but never healing. The œdema of cheek was hard and at times the patient suffered with trismus, showing that the inflammation had extended to the glenoid fossa. She complained of severe cephegalia directly over the frontal sinuses, occurring at intervals of twelve or fifteen days, concomitant with an increase in the swelling and followed by a flow of pus and mucus of a very fetid odor from the posterior nares, some of which passing into the stomach produced nausea. An examination of the oral cavity showed the teeth to be normally formed, as far as their crowns were concerned, though much affected by caries. The first and second premolars had been exfoliated several months previous, as had also the greater part of the middle and posterior parts of the alveolar process of the right superior maxillary bone, a large piece of it being visible in front of the six-year molar, which was in situ, though very loose.

On the seventeenth of June, an anæsthetic being administered, an incision was made on top of and parallel with the process, exposing the partially developed second molar and bicuspids, which were removed, except the first bicuspid, which was apparently healthy. The curet and excising forceps were freely used on the necrosed bone and mucous membrane of the antrum, which was very thick. The removal of the first (sixth-year) molar left a large sinus leading from the antrum through which much pus of a very offensive odor escaped. The treatment was both local and constitutional. A warm solution of permanganate of potassium was forcibly injected through the sinus communicating with the mouth, it finding an outlet by way of the anterior nares and the sinus beneath the orbit, which remained open for a month. After a week a solution of phenol-sodique (one dr. to two ozs.) was substituted for that. The pathological conditions now gradually disappeared, but markedly so after the administration of the iodide of potassium. The cleansing was continued at intervals of two days for two and a half months. The tissues had in this time almost regained their normal state, though a slight discharge of pus from the antrum was yet perceptible. My return to college in September prevented further care of the case by me. The use of the antiseptic was shortly afterward discontinued, so was the sinus allowed to heal with the re-occurrence of the former symptoms.

The case was next operated upon at the college clinic by Dr. William B. Lewitt, Professor of Surgery. The patient was placed under an anæsthetic and the remaining teeth on the affected side, being loose, were extracted. The central and lateral were not entirely developed; they had not reached their typal length; the apical foramenæ were very large, and the canals and chambers were filled with the debris from the decomposing pulps. The cuspid and bicuspid retained their vitality, but, being very much out of the arch, were removed. One-third of their roots were composed of a soft elastic substance, very much resembling cartilage. The process of cementification had evidently been averted before that of dentinification, the degree of which ranged from the central, in least degree, posteriorally. The 12th-year molar having no roots at all, a thorough examination revealed no carious bone. An opening was then made into the antrum in the same locality of the former sinus. This entrance into the antrum was kept open by being plugged with iodoform gauze. About a half ounce of purulent pus followed the bur of the surgical engine as it was withdrawn after making the incision. The mucous membrane was found to be much thickened and chronically inflammed.

The patient's general health is much improved, and bids fair for a thorough recovery. As soon as possible a denture will be fitted with a tube passing into the antrum, enabling the patient to use freely an antiseptic wash for an indefinite period.

THE THERAPEUTICS OF GLYCOZONE, COMPOSITION AND CHARACTERISTICS.

BY CYRUS EDSON, M. D.,
Health Commissioner, Board of Health, New York City.

GLYCOZONE is defined by its discoverer, Mr. Ch. Marchand, to be a stable compound, resulting from the chemical reaction that takes place when c. p. glycerine is submitted, under certain conditions, to the action of fifteen times its own volume of ozone, under normal atmospheric pressure at a temperature of o°C.

The necessity of using c. p. glycerine is imperative, as a presence of the water or other foreign matter in the glycerine causes the production in the resulting compound of formic acid, glyceric acid and other secondary products, that have a harmful effect upon animal tissues.

Glycozone has a pleasant, sweetish taste. Being hydroscopic it must be kept in tightly corked bottles, and, as long as it is kept in this condition, it does not deteriorate at a temperature of even 110 degrees F.

Antagonists and Incompatibles.—Glycozone, like peroxide of hydrogen is a powerful oxidizing agent, although its action is not as rapid or as energetic in this respect as the latter compound. Consequently, we cannot safely prescribe it combined with any other drugs or chemical substances. Contact with metallic utensils decomposes it. We must therefore use glass or hard rubber vessels and syringes when administering it.

Physiological Action.—When taken into the mouth and stomach glycozone causes a feeling of warmth. It excites a flow of saliva and stimulates the gastric secretions. Being hydroscopic it attracts to itself water from the surrounding tissues but not with sufficient power to effect harm. This property is due solely to the glycerine base which enters into the composition. In very large doses—one or two ounces—it causes a feeling of distress in the epigastrium and is followed by loose, copious, watery stools, which are accompanied by severe cramps.

No effect is noted on the kidneys, the liver or the heart. Glycozone is undoubtedly slowly decomposed in the stomach, ozone being liberated and the glycerine uniting with the water from the tissues. The morbid elements with which it comes in contact probably hasten this decomposition, and in so doing are themselves oxidized and destroyed. The free ozone in the stomach resulting from the decomposition of glycozone aids the digestive process by its presence.

Therapy.—Glycozone is, in the opinion of the writer, the best known agent for the treatment of gastric ulcer. It is also one of the best remedies for the treatment of the stomach, catarrh of chronic alchholism, and for chronic gastric catarrh from other causes. It is excellent for atonic dyspepsia, and for acid dyspepsia. The writer has seen very gratifying results from its use in these distressing maladies.

In catarrhal and other stomachic diseases except gastric ulcer, the remedy is best administered in one or two teaspoonfuls in a wineglassful of water immediately after meals. In the case of gastric ulcer the dose and dilution should be the same, but it is better to give it when the stomach is empty, an hour or so before meals.

Glycozone has an excellent effect when used internally in cases of diphtheria. For this purpose a tablespoonful of glycozone is given in a wineglassful of water every three hours.

As it is perfectly harmless it may be used without apprehension. The following treatment is excellent in cases of membraneous croup: The nose, throat, mouth, pharnyx, and larnyx should be sprayed copiously every two hours or so with a mixture of one ounce of Marchand's peroxide of hydrogen (medicinal), with four to six ounces of water.

The membranes are readily destroyed, and, by using this remedy freely, their reduction is prevented. Then one teaspoonful of glycozone, diluted in a wineglassful of water, administered three times a day, prevents any disturbance of the stomach and regulates the bowels.

Remarkable benefit may be derived in the treatment of diseased conditions (ulceration and chronic inflammation) of the rectum and lower gut, by enemata containing glycozone, and for this purpose nothing excels the following formula:

Glycozone..	1 ounce
Water, lukewarm...........................	12 ounces

This should be mixed immediately before using and administered with a hard rubber syringe once daily. It is frequently desirable to use a smaller amount than the above mixture. The proportions, 1 to 12, however, should be maintained. In cases of fistula-in-ano and of rectal ulcerations low down, an ounce of lukewarm water containing a drachm of glycozone administered once or twice daily soon effects good, and in cases of ulcer, pure and simple, may be expected to radically cure the diseased conditions.

External Uses.—After the cleansing of any diseased suppurating surface by peroxide of hydrogen (medicinal), the application of glycozone stimulates healthy action and hastens the cure. For this purpose it has no superior in the entire range of therapeutics. It tends to check the discharge of irritating unwholesome secretions and to prevent the infection of the sore by pathogenic organisms. Its action in this respect is explained by the fact that it is both powerfully antiseptic and stimulant.

Follicular Pharyngitis, chronic coryza and ulcerative stomatitis are all benefited by frequent applications of glycozone. As an application to ulcerated cervix-uteri and in tumefied conditions of the cervix and uteris it is far superior to pure glycerine.

In these cases and for the cure of leucorrhœa, the remedy should be applied on small rolls of lint, or absorbent cotton, the vagina having been first thoroughly washed with an injection of peroxide of hydrogen one part, water four parts. This procedure should be repeated twice daily.

THE CARE OF THE TEETH.

IT is well that the patient should realize that even in its present stage of perfection, the dental art cannot conserve the teeth without the careful and prompt removal of food substance that may find lodgment therein, as constant care and watchfulness is requisite to maintain even an approximation to that degree of cleanliness, so necessary for the preservation of the teeth and for the maintenance of a healthy condition of the gums and lining membrane of the oral cavity. The particles of food which find ready lodgment in the interstices of the teeth and in the tooth structure (forming a most suitable pabulum and very secure habitation for the multiplication of micro-organisms) rapidly degenerate into fermenting and putrefying substances and gases, highly destructive to the tooth structure and deleterious to the soft part and to the general health.

Listerine is very valuable in the care and preservation of the teeth. It promptly destroys all odors emanating from diseased gums and teeth, and imparts to the mucous surfaces a sense of cleanliness and purification; used after eating acid fruit, etc., it restores the alkaline condition of the mouth necessary for the welfare of the teeth, and employed systematically it will retard decay and tend to keep the teeth and gums in a healthy state. Listerine is valuable for the purification of artificial dentures and for the treatment of all soreness of the oral cavity resulting from their use. Patients wearing bridge work should constantly employ a listerine wash of agreeable strength.

Listerine is used in various degrees of dilution; one to two ounces of listerine to a pint of water will be found sufficiently powerful for the general care of the deciduous teeth of children, whilst a solution composed of one part listerine and three parts water will be found of agreeable and thoroughly efficient strength for employment upon the brush and as a daily wash for free use in the oral cavity, in the care and preservation of the permanent teeth.

To be assured of the genuine listerine it is advisable to procure a full-sized bottle. The substitutes so frequently offered by the trade are sometimes harmful and their value generally entirely unproven by scientific test.

REPORTS OF SOCIETY MEETINGS.

WORLD'S COLUMBIAN DENTAL CONGRESS.

DISCUSSION

Following the reading of Dr. Fillebrown's paper, entitled "Hypnotic Suggestion as a Dental Obtundent and Sedative," which is published in abstract on page 5 of the current number.

Dr. Rowland.—Are all temperaments alike subject to the hypnotic treatment?

Dr. Fillebrown.—Yes, I want to mention a little incident. We were at the Fair the other day, and at one place there was a picture which I think you may have seen. There were three views. The first represented a man with a very sober face; in the second, he had begun to read something, and his face has lightened up considerably; and in the third picture he has burst out laughing in a very hearty way. I thought there was a good chance for a demonstration, and I said to my friend who was near me: "Here is an interesting picture." And I showed him the sober face first. My friend has a rather sober face, himself. I saw him look at the next picture, and then I saw him look at the third. His face went right through the same illustration, and when he got to the third he burst right out laughing. There was no magnetism from that picture to him. What was it? It was the suggestion that picture made to his mind. You attend a theatrical performance, and see a person come along, and you remark, "What a funny fellow." He may not be dressed out of the common course, but there is something about him that suggests the idea of mirthfulness, and you laugh. You see the next person come along with the appearance of sorrow, and you respond accordingly.

Who will make the best hypnotists? It is those who can suggest best. A person who is timid, ignorant, and of a different temperament, may not be able to suggest so well. If your patient be of a fine-bred temperament, and the operator is coarse and dirty, of course you will have no sympathy there; but take a person who is intelligent, cultured, and has accurate information as to what he wants to do, is consequently self-possessed, and has all the elements that a skillful practitioner has, then he could suggest to the patient. If your patient came to you with the expectation and the wish to be hypnotized, don't you see that as soon as he enters your door he is half-hypnotized, because the suggestion rests with him, and he knows that he is to be hypnotized, and that you are the one to do it. When you come down to the point, it is very simple indeed.

Dr. J. D. Hodgen (San Francisco).—I have a case that I would like to place before the Doctor for his opinion. In administering nitrous oxide, at one time, I had an assistant, a college student, and I taught him to operate the cylinder which led to the reservoir used for such purpose. Having filled that, I was not aware that there was some obstruction between the reservoir and the mouth-piece. I administered it to the patient, and instructed her how to inhale it, as she had not taken gas before. She passed off into the regular, ordinary phenomena which is reached by the administration of nitrous oxide, and I extracted three teeth. She was awakened from the anesthesia, and was perfectly normal, just as she would have been after the administration of gas. To my utter astonishment, upon examining the reservoir, I found she had not taken a cubic inch of gas, not a single bit of it; yet she went through all the symptoms. I would like to ask the doctor if he sees any connection between this and hypnotism.

Dr. Fillebrown.—I cannot see the connection, because it is so close that there is none. The patient was thoroughly and completely hypnotized, under the suggestion that she was to be anesthetized, and that it was to take this form, and the suggestion in the patient's mind carried it right out. I am indebted to the gentleman for speaking of this case. When you come to look back over your experience, three-quarters of you will see that you have practically been hypnotizers over a long series of years. You will find that you are just in the condition that a gentleman was who spoke to me a little while ago. He said, "Well, I have been doing just that thing right along, and did not know it." You have ignorantly practiced it, and I come here and declare to you a way by which you can use the method in a great many directions in which you have not used it before.

Dr. Poor.—I have had some experience in this line. I have tried it successfully in extracting teeth. There is no question as to its usefulness. Dr. Fillebrown has not said a single thing but what is applicable in practice.

Dr. Relyea (Oswego, N. Y.)—The Doctor says he does not depend on it for extracting teeth, although I think he said he had hypnotized a person in one case and then administered ether. It struck me very forcibly, and I am delighted to hear what Dr. Fillebrown has to say. There is not any one in the profession who has not found it very hard to get the patient to commence inhalation. Would not this be a good way to start them into taking the anesthetic? Hereafter, if I have that kind of a patient, I shall certainly resort to the system of hypnotizing him. Don't you depend on it at all for extracting teeth?

Dr. Fillebrown.—I use it for preparing the patients for the anesthesia. If they are calm enough, all right; if not, I prepare them for it. In individual cases it may answer for the extraction of teeth.

Dr. Relyea.—In administering ether, it is very important and essential to educate your patients; first get their confidence, and then say to them, "Inhale this, and follow my instructions strictly. You may be partly conscious, but at the same time it will take away the keenness of the pain, and perhaps take away the pain altogether." Give them these instructions, and you will succeed beyond your expectations.

Dr. J. O. Brown (Chicago).—Does Dr. Fillebrown find that many of his patients object to being hypnotized?

Dr. Fillebrown.—A great many do object. I make no point of it at all, if they object. If they do not want it, that ends it. You can all do this when you get home. You can experiment on the first patient you have, whether he knows anything about hypnotism or not. Two friends of mine in Boston have had a great deal of success in this way. Say to your patient, "If you will do as I say, you will find the pain very much relieved. You feel like resting." While you are saying that, if you will watch carefully the muscular tension, you will notice how it relaxes in less time than I have been rehearsing it to you. Then go on and do just as I tell you. Do it quietly, and you may be sure that it will come about and help you wonderfully.

Dr. McKellops.—How many men have that power? I have paid a great deal of attention to this. It was illustrated at the Mississippi Valley Dental Association ten years ago. It is all very well for certain people to do that, but I can take any patient, and by kindness and gentleness in my operation, do anything that he does, without any hypnotism.

If you treat your patients kindly, and operate gently, you will get the same results as my friend gets from hypnotism.

Many men in the profession lack that kindness and gentleness in operation that would make them successful. I used to use ether and chloroform to a great extent. I gave it to man, woman, and child, and I am surprised that I did not kill some of them. I gave it promiscuously, but I have quit doing so. I have done away with those things. I can, by careful operation and handling my patients with care, accomplish anything that can be done with anesthetics. I want my patient to know what I am doing. I have tried it until I have worn myself out, and I have seen all there is to be seen of this thing in this country. When the profession looks into these things, it will be seen that kindness will accomplish just as much.

Dr. Fillebrown.—Everybody in this world will find some other body that will be influenced hypnotically by him. I know that Dr. McKellops can do anything that I can do. If there is any man on earth who hypnotizes his patients, it is Dr. McKellops. That is one of the surest ways of hypnotizing. Dr. Liebaud was asked once how he cured his little children. He said, "All I do is to take them in my arms, lay my hands on them, and they are cured."

Another excellent point he has made is, that practicing the art of hypnotism helps you. It forces you to kindness. No man can practice hypnotic influence or suggestion, unless he is kind and moderate, and careful with his patients, and that is one of the greatest lessons we learn. Dr. McKellops evidently did not take in the point of my paper. Hypnotism and McKellopsism are synonymous.

Dr. Whitefield (Evanston, Ill.) said that forty or fifty years ago this subject was prominently before the public, but it fell into incompetent hands, so that of late years it has been all that a man's reputation was worth to take it up. The speaker felt sure that Dr. McKellops had practiced it for years, but he called it kindness. If it is tried and failure results, it is because the operator has not confidence in himself. He suggested that it be used a little more carefully and intelligently.

Dr. N. J. Roberts (Waukegan) corroborated Dr. Fillebrown's statement. He used it now, but had to do it secretly, as parents objected to their children being so treated. He mentioned where he had used it in cases where the patient had been unable to tolerate any treatment before.

Dr. John Burnett expressed himself as convinced by practice that the treatment was of use.

Dr. E. S. Chisholm (Tuscaloosa, Ala.) said he was surprised that the subject should be so seriously discussed by intelligent men. He mentioned the case of an old negro woman who desired to have a tooth extracted. She had heard of extracting teeth by electricity, or galvanism, and said she wanted it extracted with galvanism. They gave her in one hand an old lamp and in the other something else, and told her to hold on tightly, that the galvanism might pull the tooth. Upon applying the forceps and extracting it, she expressed herself as having experienced no pain. Also mentioned the fakirs who go about the country professing to pull teeth without pain; they use a little cocaine or some such material, and if it does hurt the patient is ashamed to cry out; that is the way they do "painless extracting." He had not heard a single argument to demonstrate any science in it.

Dr. J. Rabe (Oakland, Cal.) asked Dr. Fillebrown to give a practical demonstration. To this Dr. Fillebrown answered he was willing to do so, but that usually as in such cases the operator did not like to take a new patient and one whom he had not seen before, but he would take some one as a dummy and show his mode of proceeding.

Dr. J. Y. Crawford (Nashville, Tenn.) thought he must be hypnotized, as he had fully made up his mind not to speak on the subject, but now he was speaking. If he could be made to believe that he could only exercise one faculty at one time, he would believe in hypnotism; but he did not believe, as one of the speakers had said, that such was the case.

He mentioned the case where a friend of his and a believer in the subject asked him to witness a demonstration. This he did, and he noticed that the person who was alleged to be under the influence put out his hand to prevent a screen on the stage from falling. Upon questioning the subject, he admitted that he was playing a part.

Dr. C. R. Taylor indorsed Dr. Fillebrown's position, and gave instances in his own practice.

Dr. J. D. Patterson (Kansas City) thought there was such a thing, and that he had exercised such influence over his patients; but he thought it should not be generally done, but should only be practiced by specialists.

Dr. Fillebrown then took one of the members and showed how he proceeded to practice hypnotism, merely using him as a dummy, and not giving a practical demonstration of putting a person under hypnotic influence. His plan of work was as he had described in the paper, putting his hands on the patient's head and body and talking to him, assuring him that he was asleep and would suffer no pain during the operation.

SACRAMENTO DENTAL SOCIETY.

PURSUANT to the call made by the Trustees of the California State Dental Association, asking the profession of this Slope to assist in the project of holding a Midwinter Fair Dental Congress in San Francisco, June 11th to 16th, inclusive, Dr. F. F. Tebbets, of Sacramento, issued an invitation to all the dentists of that city and county to meet at the Golden Eagle Hotel, to take some action looking to an organization to render the requested assistance.

The result of the meeting was the temporary organization of the Sacramento Dental Society. The following officers were elected: Dr. F. F. Tebbets President, and Dr. F. H. Metcalf Secretary and Treasurer.

A committee, consisting of Drs. Reith, Shaw, Reid, Root and Giardey, appointed to draft resolutions indorsing the action of the State Dental Association and giving it its moral and financial support, presented the following resolution:

Whereas, The Trustees of the California State Dental Association have seen fit to issue a call to all local dental societies to take measures pertaining to the holding of a Midwinter Fair Dental Congress in San Francisco, on June 11th to 16th, inclusive, to be independent of and take the place of the regular annual meeting of said State Dental Association, for this year; and

Whereas, We believe it to be a worthy undertaking and for the best interests of the profession at large, and for the advancement of the same, therefore, be it

Resolved, That we give this movement our hearty support, and moral and financial aid:

(Signed) Dr. Reith,
Dr. Reid,
Dr. Root,
Dr. Shaw,
Dr. Giardey,
Committee.

It was decided that a permanent dental society be formed in Sacramento, and a committee, consisting of Drs. Reith and Root, appointed to confer with the dentists of that city pertaining to such an organization.

MIDWINTER DENTAL CONGRESS.

At the meetings of the various committees held December 14th, and January 4th, much enthusiasm was evinced. Some slight changes have been made in some of the committees and others have been added. They are now as follows:

EXECUTIVE COMMITTEE.

CALIFORNIA.

Dr. S. H. Roberts (Chairman)	San Francisco
Dr. S. E. Knowles	San Francisco
Dr. Thos. Morffew	San Francisco
Dr. W. F. Sharp	San Francisco
Dr. J. M. Dunn	Oakland

FINANCE COMMITTEE.

CALIFORNIA.

J. Marion Edmonds (Chairman)	Napa
Dr. W. A. Knowles	San Francisco
Dr. W. J. Younger	San Francisco
Dr. Alfred Cane (Secretary)	San Francisco
Dr. W. R. Bird	Los Angeles

PROGRAMME COMMITTEE.

CALIFORNIA.

Dr. Walter F. Lewis (Chairman)	Oakland
Dr. Joseph D. Hodgen, Recording Secretary	San Francisco
Dr. C. L. Goddard, Corresponding Secretary	San Francisco

AUXILLIARY PROGRAMME COMMITTEE.

ARIZONA.

Dr. F. A. Odermatt	Tucson

CALIFORNIA.

Dr. E. L. Townsend	Los Angeles
Dr. C. H. Farman	Napa
Dr. R. W. Meek	Oakland
Dr. Jno. C. McCoy	Santa Ana
Dr. F. H. Metcalf	Sacramento
Dr. J. M. Parker	Santa Cruz
Dr. W. J. Younger	San Francisco
Dr. A. M. Barker	San Jose
Dr. W. G. Wallace	Stockton
Dr. A. N. Dick	Woodland

COLORADO.

Dr. P. T. Smith	Denver
Dr. A. H. Sawins	Denver

(With a request that these gentlemen select others from the larger towns of their State.)

IDAHO.

Dr. H. S. Bettis	Boise City

MONTANA.

Dr. D. I. Wait	Helena

NEVADA.

Dr. S. Southworth	Carson

NEW MEXICO.

Dr. L. H. Chamberlin	Albuquerque

OREGON.

Dr. Geo. H. Chance	Portland
Dr. S. J. Barber	Portland

UTAH.

Dr. A. S. Chapman	Salt Lake

WASHINGTON.

Dr. G. W. Price	Seattle
Dr. W. C. Burnes	Tacoma

COMMITTEE ON TRANSPORTATION.

CALIFORNIA.

Dr. Russell H. Cool (Chairman)	Oakland
Dr. B. B. Brewer	San Francisco
Dr. C. W. Hibbard	San Francisco

COMMITTEE ON LOCAL ARRANGEMENTS.

CALIFORNIA.

Dr. Thos. N. Iglehart (Chairman)	San Francisco
Dr. L. L. Dunbar	San Francisco
Dr. Chas. L. Bush	San Francisco
Dr. Charles E. Post	San Francisco
Dr. H. P. Carlton	San Francisco

EDITORIAL COMMITTEE.

CALIFORNIA.

Dr. Joseph D. Hodgen (Chairman)	San Francisco
Dr. W. A. Knowles	San Francisco
Dr. F. W. Bliss	Santa Cruz

RECEPTION COMMITTEE.

CALIFORNIA.

Dr. J. A. W. Lundborg (Chairman)	San Francisco
Dr. F. M. Baldwin	Los Angeles

CANVASSING AND MEMBERSHIP COMMITTEE.

CALIFORNIA.

Dr. T. N. Iglehart (Chairman)	San Francisco
Dr. M. J. Sullivan	San Francisco
Dr. A. C. Hart	San Francisco
Dr. S. H. Roberts	San Francisco
Dr. Fred. Teague	San Francisco

AUXILLIARY CANVASSING COMMITTEE.

CALIFORNIA.

Dr. E. W. Biddell	Healdsburg
Dr. W. R. Bird	Los Angeles
Dr. F. H. Metcalf	Sacramento
Dr. A. M. Barker	San Jose
Dr. Russell H. Cool	Oakland
Dr. George McCowan	Ukiah

ARIZONA.

Dr. A. A. Doherty	Nogales

OREGON.

Dr. M. Hayter	Dallas
Dr. J. R. Cardwell	Portland
Dr. S. J. Barber	Portland
Dr. D. Siddell	The Dalles

On motion the fee was changed from $10 to $5.

The Code of Ethics adopted by the American Dental Association was elected as that by which the members of the Congress would be governed.

After quite a discussion, various motions, numerous amendments to such motions and further debate, the name of the gathering was changed to that of The Midwinter Fair Dental Congress, and the time of meeting June 11th to 15th, 1894, inclusive.

On motion the dealers and manufacturers of dental and surgical supplies were cordially invited to make exhibits of their products at the Congress.

Dr. J. D. Hodgen, upon request, explained the desire of the publishers and editors of the Pacific Coast Dentist to issue a daily edition of the journal during the five days of the Congress. The project met with much enthusiasm and praise and every assistance was promised the editor in return for his energy and enterprise. The matter was left to the Executive Committee, with full power to act in conjunction with Dr. Hodgen and the publishers.

Verbal reports were made by the Committees on Programme, Transportation, Publication, Executive, Reception, Local Arrangement and Canvassing. Many of them full and very encouraging.

Dr. C. H. Farman of Napa, preferred formal charges of unprofessional conduct against Dr. J. Marion Edmonds of the same city, and chairman of the Finance Committee. The matter was referred to the Executive Committee.

After the meeting some of the members organized themselves into a Committee of Arrangements for a banquet of the various committeemen to be held Saturday evening, January 13th.

[A very enjoyable meeting was held, but, with the reporter for the *Chronicle*, we very much regret the loss of our new overcoat during this severely cold spell. With the hope that the "borrower" has repented, we will state that ours was the black box-coat. No questions asked.—Ed. P. C. D.]

EDITORIAL.

A MIDWINTER FAIR DENTAL CLUB.

THOSE who had the pleasure of attending the Columbian Dental Congress will agree that no one thing was more thoroughly appreciated and patronized than the hospitality of the Columbian Dental Club.

California has enjoyed the enviable reputation of being royally hospitable and generous. In years gone by on every occasion, no matter of how small importance, or how great the necessary expense, or laborious the labor required to properly entertain, her guests have gone home tireless in their praises for the hospitable Californians. Thus this admirable reputation has been won.

To say that times have changed; that our people are not of the generous nature they used to be, or that there is any inclination to rest on the laurels already won, would be unjust. California, and San Francisco especially, has, during the coming Spring and Summer, an opportunity that in all probability will not occur again in years, and also one that few States and cities are privileged to take advantage of. It is not a question, we believe, how we shall deport ourselves, or whether his valuable reputation our fathers have so generously made for us will be borne out by their sons, but, instead, a query: How can we *best* entertain our guests to the Auxilliary Congress and the Midwinter Fair?

We are reasonable in expecting a number of Eastern fraters, and many from different parts of the Slope. Most of these are unacquainted with and many have not visited our city before. There are always petty annoyances associated with one's arrival and stay in strange places, that, even though of small import in themselves, are many times sufficient to mar the complete enjoyment of their entire stay.

The art of entertaining is in no part so valuable or more appreciated than in the reception of a guest. First impressions are many times the most lasting, and if we wish our guests to enjoy our entertainments and be pleased with us, we must endeavor to make them feel at home as soon as they cross the State line, if possible. This can easily be done if we can assure them in advance of a cordial reception the moment they set foot in San Francisco. Knowing that comfortable hotel accommodations await them and that all those little attentions so gratifying will be seen to by those whose business it is to make one comfortable, will accomplish this without doubt.

To this end let proper committees be appointed to look to the establishment of a Midwinter Fair Dental Club, to be located in easy walking distance from the place of holding the Congress, where the guest may be met by those in charge and taken to such a hotel as he may desire, his baggage attended to, and himself made feel welcome.

Such a rendezvous where all may be formally introduced to each other, and old friends meet to exchange bygones, college chums to enjoy a quiet chat, and the guest a pleasant place to write home to his wife and tell her she has really missed nothing and not to feel disappointed on account of his not bringing her is a necessity.

We cannot properly entertain our guests without something of this sort. Chicago saw the need of it, and her guests appreciated it. Let us be up and doing.

SERIOUS.

IT is a serious thing to openly and formally prefer charges of wrong-doing against a fellow-practitioner. Very serious for the accused if proven; very serious for the accuser if *not* proven.

The code of dental ethics is strained and broken so frequently—even by those "earnest" fellows who wove it to their own liking—that the poor old fabric, when not lost in dust or ruined by moth, is so darned and patched that it is hardly recognizable. That is serious, too. That so few of the *many* shortcomings, irregularities and infractions are noted, or, at most, are only amenable to the punishment gossips inflict, is also serions.

It is a serious thing that justice is so rare; that men of sufficient determination and moral courage are so few, and that the societies are so derelict of duty.

It requires a man of no little moral courage to publicly censure another for his faults. The man who is willing to undergo the experience of such a position must fully feel the potency of his evidence. He has too much at stake to take a step without feeling perfectly justified in doing so; and what he states must be proven immediately or his risk is proportionately greater.

Should it be so; should a man be required to risk so much? His position is altogether a most unpleasant one. Indeed, he is a brave man who so thoroughly has the courage of his convictions.

On the other hand, it is very serious to wrongly, unjustly and maliciously accuse one. It is very discouraging, to say the least, to a man who has endeavored to lead an honest, upright and professional life—a man who has sought the companionship of the most praiseworthy, and associated himself with the very best of organizations—to be so charged.

Committees and boards of trustees who must constitute themselves into tribunals for the trial of such charges cannot weigh the matter too carefully.

Let justice be done.

THE MIDWINTER FAIR DENTAL CONGRESS.

ON another page we have chronicled the change in the name of the proposed dental convention to be held in San Francisco during June next, together with a slight change in the time of meeting.

The official name is now "The Midwinter Fair Dental Congress," and the time of meeting is June 11th to 15th, 1894, inclusive.

While we do not believe, as a rule, such changes are wise, the time is yet so distant, and so little has yet been accomplished by way of advertising the meeting, that we are persuaded the change will do little or no harm.

The original name, "Midwinter Dental Convention of the Pacific Slope," was unmistakably a poor choice. It was too long and unwieldy, and ambiguous and misleading. It was said that people in the East had obtained an erroneous idea of our conception of the seasons ; that our Winter and Summer were so much alike that we were compelled to seek the counsel of the calendar to determine what the season really was.

Whatever the name may be, and whenever the time of holding the meeting is, there will be a goodly number in attendance. Of this fact we are convinced by the general interest manifested throughout the Slope and most of the East.

The various committees have done splendid work, and will continue to busy themselves in their preparations for the grandest dental meeting ever known this side of the Mississippi river. As a matter of fact, it is sure to have no greater predecessor than the Columbian Congress so recently held.

On Thursday evening, January 18th, another meeting of the committees will be held at the office of Dr. Thomas N. Iglehart, No. 713 Sutter street, and it is hoped that every one interested in the success of the congress will make it a point to be present, as there are still numerous committees to be appointed and much business to consider. In the meantime, just as we go to press, we are in receipt of an invitation to a banquet of the various committeemen. This will no doubt be a delightful evening, and accomplish much by way of promoting enthusiasm.

The Canvassing Committee is hard at work securing the signatures of those who intend to give the Congress their support, if not presence; and it is sincerely hoped that no ethical progressive dentist will deny his name. Look to it that you are identified with the meeting in some way.

PUBLISHER'S NOTICE.

WITH this number we commence the second volume of the PACIFIC COAST DENTIST. It shall be our aim this year, as it has been in the past, to make this journal a progressive, instructive and valuable magazine of current dental literature, and no pains will be spared in making it in every way a peer to the best.

DAILY EDITION.

During the session of the Dental Congress in June next, the PACIFIC COAST DENTIST will issue a daily edition containing the Official Programme for the day, and all news, papers, etc., of general interest.

We do this because we are all more than anxious that California's guests shall be properly entertained, and feel that we should be a factor in the accomplishment of it.

We point with pleasure to our select advertisements of instruments, remedies, schools, etc., especially to the *Haskell Post-Graduate College* of Chicago, now conducting a continuous session of instruction.

NOTICES.

Book Notice.

We are pleased to inform our readers that the fourth volume of *Catching's Compendium of Practical Dentistry*, for 1893, will be out in February. If you have not been getting this work, we would remind you that no more choice volume is issued, and after having had it you will wonder how you got along without it. Price, $2.50.

We are in receipt of a very handsome and convenient pocket appointment-book, with our name nicely lettered in gilt on the back, and take pleasure in thanking R. I. Pierson & Co., of Kansas City, for the same. Similar ones may be had for 75c; without name in gilt, 50c.

KALEIDOSCOPIC.

Illinois State Dental Examiners.—The following preamble and resolutions were adopted by the Illinois State Board of Dental Examiners, in Springfield, November 14, 1893:

WHEREAS, It appears that this Board has been appointed to carry out the provisions of an act approved May 30, 1881, entitled: "An act to insure the better education of practitioners of Dental Surgery, etc.," and

WHEREAS, It appears to be the unanimous wish of the dental profession of this State that the public should be protected against dental quackery, and

WHEREAS, It has been found that the only real protection against dental quackery, and the wish of the great majority of the dental profession of this State is that ALL those who wish to enter into the practice of the dental profession in this State should be examined by this Board, be it

Resolved, That all dental schools and colleges chartered by this State shall be requested to allow this Board or a member or members of this Board therefor selected to be present at the examination, and see all the questions and answers of, or examine, their candidates for graduation prior to and before the aforesaid dental schools and colleges confer their regular Degree of Dental Surgery on the aforesaid candidates, and it is further

Resolved, That all dental schools and colleges as aforesaid, which consent to the examination of their candidates for graduation, in writing to the secretary of this Board shall be recognized by this Board as *reputable*, and be it further

Resolved, That all dental schools and colleges of this and any other of the United States, as well as any foreign State which do not consent to the above, and which do not carry out their rules an dregulations as laid down in their announcements or the tenets of dental organizations to which such dental colleges or schools, or their faculty, may belong, shall not be recognized as reputable by this Board of Dental Examiners of the State of Illinois, it is further

Resolved, That all prior rules of this Board in conflict with the above resolutions are hereby repealed.

SPRINGFIELD, NOV. 14, 1893.

G. A. MCMILLEN, Pres't.
L. L. DAVIS,
L. IRONS,
GARRETT NEWKIRK,
FRITZ W. HUXMANN, Sec'y.

The following colleges approved the above preamble and resolutions: Chicago College of Dental Surgery, by A.W. Harlan, Frank H. Gardiner; The American College of Dental Surgery, by Theo. Menges; The Northwestern College of Dental Surgery, by E. Kargau; Northwestern University Dental School, by Charles P. Pruyn; The German-American Dental College, of Chicago, by Wm. M. Rosenthal; Columbian Dental College, of Chicago, by J. Clendennen.

The Connecticut Dental Law.—This law was passed May 25th, and went into effect July 1, 1893, and the following five Commissioners were appointed by Governor Morris: James McManus, Hanford; William J. Rider, Danbury; Civilion Fones, Bridgeport; Gen. Chas. P. Graham, Middletown; Richard W. Browne, New London.

The new law reads as follows:

SECTION 1. The Governor shall appoint on or before the first day of July, 1893, and biennially thereafter, five persons to be known as Dental Commissioners, who shall hold their respective offices for two years from the first of July in the year of their respective appointments, and until their successors shall have been appointed and qualified.

SEC. 2. No person shall be appointed a Dental Commissioner who shall not have been, for at least ten years previous to such appointment, a practitioner in dentistry in this State and in good standing in said profession.

SEC. 3. Said commissioners shall appoint one of their number to be official recorder, whose duty it shall be to keep a record of the official proceedings of said commissioners, and copies of said record certified by him shall be legal evidence.

SEC. 4. On the request of said commissioners the comptroller shall provide a suitable place in the capitol at Hartford for all meetings of said commissioners.

SEC. 5. Said commissioners shall meet in May of each year and at such other times as they shall designate, for the purpose of attending to their duties as prescribed by this act.

SEC. 6. Said commissioners shall give due notice of every meeting to be held by them pursuant to the provisions of this act, by advertising the place of their meetings, for two weeks successively, in two of the daily newspapers published in said Hartford, and before the date of said meetings.

SEC. 7. Said commissioners may make such rules of procedure for the regulation of all matters of application and hearing before them as they may think advisable.

SEC. 8. Nor person, unless he has already commenced the practice of dentistry in this State before the passage and approval of this act, shall be engaged in said practice at the said time, shall engage in such practice in any town in this State, unless such person shall have first obtained from said commissioners a license therefor.

SEC. 9. All applications for said license shall be in writing and signed by the applicant, and no license shall issue to any person unless he shall have received a diploma or other sufficient certificate of honorable graduation from some reputable dental college having a department in dentistry, and duly recognized by the laws of the State or States wherein the same is situated, or unless he shall have spent as a pupil or assistant at least three years under the instruction and direction of some reputable dentist, or unless he shall have had at least three years continuous practice as a dentist, which facts must be shown to said commissioners by sufficient evidence.

SEC. 10. Nothing in this act shall be construed as preventing any practicing physician or surgeon from the performance of any operation in dentistry on any patient under his charge. Nor shall any lawfully practicing dentist be prohibited hereby from availing himself of the services of any pupil, student or assistant employed by him and under his immediate supervision.

SEC. 11. Every applicant for a license shall be examined by said commissioners, as to his professional knowledge and skill, before such license shall be granted, and they may refuse to grant a license where they are satisfied that the applicant is unfit or incompetent; they may for good and legal cause revoke any license that has been granted and may prohibit any dentist in lawful practice from further practice, on satisfactory proof that such dentist has become unfit or incompetent therefor.

SEC. 12. Cruelty, incapacity, unskillfulness, gross negligence, indecent conduct towards patients, or any such professional misbehavior as shows unfitness on the part of the dentist, shall be sufficient cause for the revocation of a license, or prohibition to practice as above provided; and whenever complaint shall be made to any of said commissioners against any dentist practicing in this State, said commissioners shall investigate the matter, and on finding probable cause shall notify the party complained of to appear before them and show cause why he should not be prohibited, or why his license should not be revoked.

Sec. 13. Every such notice shall be in writing, and signed by the recorder, and shall contain a statement of the causes for which such prohibition or revocation is claimed, and shall specify the place and time for the hearing, which shall be at least twelve days after the service of said notice. Said notice may be served by leaving a copy thereof attested by the recorder, at the place of business of the party complained of, or at his last usual place of abode, or by sending the same by mail.

Sec. 14. Any dentist, who shall at any hearing before the commissioners, either by himself or by his procurement, make any false statement or misrepresentation with intent to deceive or mislead said commissioners, shall hereby forfeit his license or be prohibited from practice.

Sec. 15. Any dentist who is aggrieved by the action of said commissioners in the revocation of his license, or prohibition from his practice, may apply to the Superior Court or Court of Common Pleas, next to be in session in the county in which he resides, for a writ of mandamus, requiring them to revoke their decision, if same be found on hearing to have been erroneous. Such application for a mandamus may be served on said commissioners by some proper officer or indifferent person, by leaving with the recorder, or at his usual place of abode, a true and attested copy thereof within twelve days after said commissioners shall have notified such dentist of their decision.

Sec. 16. Every person applying for a license shall at the time of his application pay to the recorder a fee of twenty-five dollars, and if such applicant shall fail to obtain his license twenty dollars shall be returned to him.

Sec. 17. The recorder shall keep an account of all moneys received by him and shall annually in November render his account to the comptroller; and shall pay over from the moneys received by him the necessary traveling expenses of the commissioners, and for necessary books and stationery, and shall keep all files, receipts and records in his possession, and deliver the same to his successors in office.

Sec. 18. Said commissioners shall make to the State Board of Health an annual report of their proceedings, in such form and at such time as such Board of Health shall prescribe.

Sec. 19. Any person who shall engage in the practice of dentistry in violation of the provisions of this act, shall be guilty of a midemeanor and shall be fined not less than twenty dollars nor more than fifty dollars for each offense; and the unlawful practice of dentistry for one week or part of a week shall be deemed a separate offense.

Sec. 20. Sections 2024 and 2025 of the general statues are hereby repealed.

THE
Pacific Coast Dentist

VOL. II. FEBRUARY, 1894. NO. 2.

ORIGINAL COMMUNICATIONS.

ACUTE MENINGITIS AS A RESULT OF NITROUS OXIDE GAS ADMINISTRATION.

BY W. B. SHERMAN, D.D.S., SAN FRANCISCO, CAL.

ACUTE meningitis is, in all probability, one of the most prevalent and dangerous sequela of the exhibition of nitrous oxide gas. That it occurs more often than is recognized we are lead to believe from the recital of symptoms unassociated by observers, and that its final results reach over a greater length of time than usually thought we are sorry to own; whereas the exact means by which this gas produces the anesthetic state, and the physiological changes which take place, may be causes of discussion and dispute among the specialists in this work, there is one phenomena always present, and subject of actual demonstration; we refer to the congested state of the brain, spinal cord and their membranes.

Of the many reports of experiments showing this, let us reproduce that* made by Dr. Buxton, which will serve to confirm our statement: "The skull of a medium-sized dog was trephined and nitrous oxide gas given through a tracheal tube—under normal conditions the brain was seen some measurable distance beneath the bone, pulsating quietly and synchronously with the respiration. The color of the brain covered with piamater was pinky-red, or, more exactly, vermillion. When the gas was pushed, and the animal made to take it freely, the brain substance was seen to swell up and gradually reach the trephine-hole. The color now began to change and a dark-blue shade appeared. The brain substance still increased in volume and even protruded without the trephine-hole, almost motionless, and of a pearly, glistening lustre of bluish hue. The vessels, examined with a strong lens, presented the well-known look of commencing stasis. The experiment was repeated—the phenomena observed were strikingly uniform."

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*See Turnbull on Anesthesia, pages 159-163.

NOTE.—The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in this country.

And, further, in reference to the cord, we find the following: "The animal was then made to respire nitrous oxide; a very marked effect soon showed itself; the cord gradually enlarged and the cerebro-spinal fluid began to well out, showing the enlargement along the whole length of the cord. This experiment was repeated, and the same result was always obtained."

These phenomena should command our attention, and always be borne in mind when the examination preceding gas administration is being made. It will often relate mysterious effects with their causes. Its bearing upon the advisability of an exhibition will be seen at once; it comes into play in such cases as threatened apoplexy; nervous depression and exhaustion; former meningitis in any of its forms; and in any case where the free circulation of the blood within the brain or cord is impeded, by organic lesions of the heart or lungs or of any organ tending to produce such a condition; a weakened state of the sympathetic and cerebro-spinal nerve systems, impairing the nerve force of the muscular walls of the arteries, and aneurism of any of these vessels. These conditions would contra-indicate the use of gas, which, in all probability, would become the active cause of grave trouble, if not fatal results. The amount of gas inhaled bears upon this result. Whereas we recognize that in far too many cases a not sufficient amount is given, again in some exhibitions more is administered than the severity of the operation requires; a happy medium is the desideratum. Knowing that the conscious state is overcome before the susceptibility of the nerves to receive an impress, and the brain to recognize it, are done away with, we perceive that injury could be inflicted by an insufficiency of the gas, making shock possible; so likewise, bearing in mind the above-mentioned phenomena, we see how injury could accrue from too much gas; too much in these cases often being not more than the desired amount under normal conditions. A diligent inquiry during examination, as to these abnormal conditions should be made, and due importance given to their presence. Under them, the gas generally acts more quickly; the vital centers are more acute and impressionable; the acceleration of the respiratory function is marked; the flushing of the face is more quickly accomplished and more intense; a greater amount of heat in the cervical region is apparent and generally, not always, the time of narcosis is increased.

Where there is a tendency to apoplexy we always find present more or less inflammation, which readily affects the meninges, and so anything with a tendency to produce congestion might throw these parts into active inflammation.

Previous or present nervous exhaustion and depression should be carefully noted. Under such conditions there is absent the force necessary to regulate the diameter of the capillaries as well as that force required for recuperation. Former meningitis would act as a predisposing cause and would almost surely result in active attack. Where the free circulation of the blood is impeded we have an obstacle to the restoration of the equilibrium of the circulation, and in so far becomes objectionable. The evidences of meningitis in the connection in which we are now considering it will not appear until after the patient recovers from the administration; from two to five minutes the signs may be looked for. These generally are ushered in by jactitation of the masseter muscles. It would seem that the floor of the fourth ventricle of the brain is more susceptible to inflammatory tendencies than other parts of a normal brain, for here lie the centers of such important cranial nerves as the "fifth pair" the "facial" and the "pneumogastric" nerves; and it is from the excitation of these that we get our first evidences of congestion within the brain case. The deep origin of the optic nerve, being within the *corpora quadrigemina*, the processes from which help to form the lateral boundaries of the fourth ventricle is also directly affected, and as a result we have obscured vision, as evidenced by the complaint of the patients that they "cannot see," hence another symptom very soon follows, the spasmodic working of the facial muscles from excitation of the center of the facial nerve. It would be impossible to stimulate these nerve centers without causing like results to the more vital centers, which are also placed within the floor of this ventricle—the centers of lung and heart action; and so we find our patient breathing rapidly, and in a shallow manner, an action which increases in severity as the inflammatory state is continued; the arterial pressure is greatly increased with the rapid beating of the heart, the most unfortunate effect of all the symptoms. As the effect of the blood pressure is felt down upon the cord in the cervicle region we have twitching of the fingers and energetic movements of the hands. Heat is felt markedly at the back of the neck and complaint of pressure there.

The above signs and symptoms are sufficient to mark the trouble and to give us a reasonable clue to the treatment necessary. This must be for these attacks the same as for meningitis from any cause, the cardinal principle being the immediate reduction of artificial pressure. It is eminently a case of restoration of equilibrium of the circulation, the ease of accomplishment of which lies in the celerity with which means are employed, for in proportion as the time of infliction is continued, so in proportion is the elasticity of the muscular fibres of the vessels vitiated. Prompt action is imperative. All treatises on the subject favor blood-letting, but this we maintain is proper procedure only after the attack has become severe or treatment delayed. Knowing what may come, we should be prepared upon the first signs to apply that which might be called preventative treatment. The immediate application of chopped ice in a bag to the back of the head and neck, or even a towel of ordinary cold water, judiciously made and applied at once, after the first signs of recuperation from the anæsthetic state, will, in the majority of cases, abort any tendency to meningitis. Indeed, so advantageous has this means become toward the rapid, complete recuperation, that we adopt it now in all cases. Much less excitement results and marked decrease in the number of those cases characterized by a subsequent state of nervous excitement. We made use of the term judicious. Special consideration should be given this.

When cold water of ordinary temperature is used, not so much care is necessary, the requirement being only the change of towel when it becomes warm; but in cases where the use of ice becomes imperative, we have then to be upon our guard, and to use great care in its application. Continued contact with the skin would give us a frozen condition; too long an absence of it after its first effects would cause a reaction detrimental to our efforts at restoration; a happy means is the desired thing, and knowledge as to this comes from experience. Too much importance as to the efficacy of this treatment and its early use cannot be made. The inhalation of chloroform gas after nitrous gas is good procedure when the attendant cerebral excitement comes from a general and comparatively harmless determination of blood equally diffused over the brain matter, resulting in different forms of hysteria and kindred emotions, but where the inflammation action tends towards concentration and an active inflammation, its use must be deprecated. Too great relaxation ensues, and a lowering of tonicity results. It is desirable that the blood pressure should be reduced; and to accomplish this aconite, or *veratrum viridi per orem,* could be administered, and, in urgency, hypodermically. A hot compress to the extreme base of the spine is an effort at counter-irritation which should not be lost sight of; in severe cases, this with hot bath for feet and hands proves beneficial. Blood-letting remains for extreme cases. The patient should be kept in an upright position, and a fan for face and neck kept in motion. Alcoholic liquors should be eschewed by all means, as their tendency is towards stimulation of the very parts which it is desired to sedate.

As intelligent practitioners we must not fail to appreciate the responsibility of our position in administering any anesthetic agent. We must bear in mind, that, where consciousness is lost, even for a second of time, we tread upon dangerous ground. It behooves us to know our business, to compass our subject, and to have a practical education in it. It is a most serious act, the dethroning of the human reason, and one demanding such services of us, has the right to expect at our hands a knowledge of all that is known upon the subject, and for this should be made to pay in good measure. The ideal administrator is born, not made.

CORRECTIVE DENTISTRY: ITS PRESENT STATUS; WHAT ARE THE SIMPLEST APPLICABLE FORMS OF APPARATUS, AND MOST EFFICIENT RETAINING FIXTURES?

BY PROF. C. L. GODDARD, A.M., D.D.S., SAN FRANCISCO.

[Read before the San Francisco Dental Association.]

IN the field of orthodontia at the present time we find several systems, each of which is claimed to be perfect, and without which no one, according to the various authors' statements, can succeed in regulating teeth.

The most prominent of those introduced within the last few years are Angle's and Jackson's. Each is a radical departure from previous methods, though Angle's resembles Farrar's, inasmuch as the screw is almost the only force used, while Jackson's system depends almost entirely on the elasticity of piano wire for its force. Angle's appliances are all attached to tubes soldered to bands which are cemented to the teeth, while Jackson's are soft-soldered to what he calls *cribs*, which, when in use, grasp the teeth firmly, yet which can be removed easily when necessary.

With both of these systems, as well as with Farrar's and Patrick's, the plate is dispensed with, yet, in my opinion, plates for many movements of the teeth are simpler than and superior to all other appliances. One disadvantage of a system which depends on bands for attaching all appliances is the space occupied between the teeth by the bands themselves, although each band need be only the thickness of No. 33 plate on each side of the tooth. When it is necessary to band four, six, eight or sometimes ten teeth, the amount of space occupied by the bands amounts to considerable, and uses up, so to speak, the space gained by spreading the arch or by extraction. In this respect the plate system and the crib system of Jackson's are both superior.

Piano wire was introduced by Dr. Coffin, of England, at the International Medical Congress, held in London in 1881, when he exhibited what is now known as the "Coffin split plate," and also other plates in which the piano-wire springs imbedded in vulcanite, served to move teeth in different directions. This split-plate attracted a great deal of attention, and made the inventive American a little jealous.

There is a great deal of comfort now, however, in the discovery that Dr. Coffin and Parsons Shaw, the inventors respectively of the split-plate and the Shaw dental engine (the two greatest dental inventions ever made in England), were *both Americans.* Now let the eagle scream and flap his wings!

The present status of corrective dentistry is so far in advance of its position a few years ago, that now almost anything is not only attempted, but accomplished. Teeth are not only moved from outside the arch into line, from inside out into the line, rotated, lengthened, shortened or turned to more presentable shapes, but are forced to erupt when too tardy. If the whole arch is too narrow, the two halves of the superior maxilla may be separated. Roots are forced to move, and even carry the process with them. Dr. Case of Chicago has succeeded in moving forward the roots of superior incisors while the cutting edges of the crowns were kept back, so that the incisive process moved forward and carried the sunken upper lip with it, thus correcting a depression at the base of the nose. By so doing, he even altered the shape of the nose itself, moving forward the base and changing it from a Roman to a Grecian.

The results were shown by Dr. Case at the Columbian Dental Congress* by models of the face as well as of the teeth. When these are illustrated in the published proceedings they will be an interesting study for all.

"*What are the simplest and most universally applicable forms of apparatus?*" An answer to this would cover the whole field of orthodontia; yet here we must condense. Let us at the beginning enumerate the various conditions that it is necessary to correct: (1) a tooth out of the arch; (2) a tooth inside the arch; (3) a tooth rotated; (4) a tooth too long or too short; (5) two or more teeth in any or all of these malpositions; (6) a contracted arch, including the saddle shape, with which may be associated any or all of the conditions already enumerated. To these may be added: (7) superior protrusion, and (8) prognathism. Though these might belong to the first two divisions, it will be sufficient to give one apparatus for each division.

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*See PACIFIC COAST DENTIST, Vol. I, page 219.

For moving an outstanding tooth into line, nothing is simpler nor better than a small rubber band over the tooth, and extending to a peg or hook in a vulcanite plate fitted to the roof of the mouth and held by atmospheric pressure.

For the second position—a tooth inside the arch—the simplest appliance is presented by Dr. Talbot: a strip of German silver, made elastic by rolling or hammering, and extended around the lingual surface of the tooth, between it and the teeth on each side and bent over the labial surface of each. This strip is removed each day and bent again slightly, so as to make up for previous movement and renew the elasticity.

For the third position, rotation is necessary, and first we need a method of attachment. Nothing is better than the Magill band, with one or two hooks on it, cemented to the tooth. A rubber band from the hook to a plate fitted to the roof of the mouth, as in the first case, will give all the movement necessary. The reason that I suggest the rubber plate is that it gives firm attachment for the rubber band, without loosening any other teeth.

For the fourth position the "grind-stone cure" is the simplest for the long tooth, and the forceps for the short one. While these are the simplest they are not the best. For the long tooth a band may be cemented on the tooth on each side, near the neck. On both labial and lingual sides let a stiff wire extend from band to band across the long tooth. From the lingual wire let a rubber band pass over the end of the long tooth to the labial wire. If the rubber band tends to slip off the cutting edge, it may be prevented by cementing a small metal cap on the cutting edge and making a notch in it. For a short tooth a band or cap may be cemented on the tooth on each side, a stiff wire extended from cap to cap across the space between. On the short tooth cement a wide band near the neck, with a hook or pin on both labial and lingual surfaces. Pass a rubber band from one hook over the bar to the other.

For the fifth form, that is, combinations of any or all of the above forms, I know of no simple appliances that are universally applicable; each case must be studied by itself, and appliances made according to the demands. In a combination of the first two teeth, inside and outside of the arch, appliances may be made so that the teeth react on each other, and, while one serves as an anchorage for force applied to the other, both will move in position. The combination appliance already spoken of may be utilized, and the outer and inner bow-spring serve for attachment of rubber bands for moving teeth out or in. If two teeth are rotated, centrals for instance, in a V-shape, Angle's appliance for double rotation is the simplest and best.

When the central incisors are rotated the other way, that is, their distal surfaces turned outwards, they can be made to rotate each other by extending a rubber band from a hook on the labial surface of one around the lingual surface of both to a hook on the labial surface of the other. When two incisors are twisted in the same direction and lap over each other, they also may be made to rotate each other by attaching a rubber band to a hook on the labial surface of one, extending it between them and fastening it to the lingual surface of the other.

Prominent cuspids are difficult to move on account of the size and length of their roots. If sufficient room cannot be gained for them by expanding the arch, extraction must be resorted to, selecting the first bicuspid more often than any other tooth, because it is nearer and posterior. The extraction of the second bicuspid, or sixth-year molar, instead will depend on its carious condition. Room having been gained by extraction, the cuspid can best be moved backward by cementing a band to it and one to the sixth or twelfth-year molar, or preferably to two teeth, for greater anchorage, then drawing the cuspid back by means of Angle's drag-screw, or by rubber bands attached to hooks, as advocated by Prof. Guilford.

If the outer hook on the molar or bicuspid be made of a tube, it may be utilized, in case the laterals or centrals need moving forward, after the cuspids have been drawn back by extending a bow-spring from the tube on one side of the mouth around the labial surfaces of the teeth to the tube on the other side and drawing the teeth forward by rubber bands attached to this bow-spring.

Superior protrusion may be best reduced by putting a cap on the back of the head and extending elastics forward to a bit or small cap resting on the anterior surfaces of the incisors.

What are "the most efficient retaining fixtures?"

Although in many cases the same appliance may be used for retention, it is best in most cases to apply some fixture that cannot be removed by the patient. In cases of a single tooth moved out or in into line nothing is better than a band with a round bar or wire soldered to its lingual or labial surface, according to the case, and extended so as to rest on the adjoining teeth. When a single tooth has been rotated it is best retained by the same appliance just described, except that the bar need extend to a tooth on one side only, though sometimes it is necessary to fasten a bar on both labial and lingual surfaces. In double rotation replace spring or rubber by platinum wire· In more complicated cases, where two or more teeth have been moved outward or inward or rotated, they may be retained by fitting a band to each and soldering the bands together where they touch each other. The space occupied by the bands may be lessened half by trimming away the upper part of one and the lower part of the next one, where they touch each other, before soldering. They are more easily united if a small wire is extended vertically from one to the other before soldering. It is to be understood, of course, that in all cases where bands are mentioned they are to be cemented to the teeth.

In this paper I have described simple cases, simple appliances and general principles. Often complicated cases will be met with for which I must refer you to the various text-books, articles in the journals and your own ingenuity.

REFINING GOLD.

BY JOSEPH D. HODGEN, D.D.S., SAN FRANCISCO,
Assistant to the Chair of Dental Metallurgy, College of Dentistry,
University of California.

THE writer feels that he thoroughly appreciates from personal experience the convenience of being able to refine gold scaps that from time to time accumulate in an office or laboratory, and to make them into plate, crown or clasp gold, or gold solder of any desired carat.

It is not the ambition of this paper to present anything novel to the metallurgist, but, instead, to place such practical facts as are best known and convenient of application in such a manner that they may be of some service to general practitioners, especially those who may be so situated that to send such matter to the mint or a refiner is impracticable.

Roasting Process.—A method for roughly refining and rendering brittle gold malleable.

This process may be satisfactorily employed where the approximate carat of the scraps is known and the admixture of a small quantity of the base metals is suspected; where gold is found to be unworkable, which fact is due to some accidental addition of debased metal.

The apparatus required for this is a crucible furnace, such as made by Fletcher of England, and which is now supplied to be heated by either gas or petroleum, a half-dozen nests of ordinary sand crucibles, powdered borax, dried potassium carbonate, powdered animal charcoal, potassium nitrate, powdered sulphur, ammoniac chloride, ingot-mould, tongs, etc.

The furnace should be so placed beneath a chimney or by a window with an outward draught that the fumes escaping from it during the roasting would not fill the laboratory, thereby endangering the health of the operator and damaging such instruments and tools as may be unprotected. The most convenient opportunity to avoid such a result is the fire-place. The furnace may be placed beneath its chimney in such a manner that all fumes will be readily carried off.

Boraxing the crucible properly is an important step in this process, and is best accomplished by first submitting a clean sand crucible to the flame of the roasting furnace until approximating a white heat, then introducing about one-third its capacity of powdered borax. This being immediately melted it is made to line the sides by properly tipping and rotating the crucible with tongs.

When the crucible has been well boraxed the alloy of gold may be introduced and fused. If there is reason to suspect either the admixture of zinc, antimony, bismuth, or small quantities of iron, steel or copper, it may be removed by treating the molten batch of gold alloy with potassium nitrate ($K N O_3$). Small quantities of the nitrate are added from time to time, supplying the oxygen necessary from the oxidation of the base metals. The alloy is thus kept molten with a small quantity of $K\ N\ O_3$ for from fifteen to fifty minutes, when the flux of borax and nitrite may be skimmed off and the gold poured into the oiled and warmed ingot-molds, or allowed to cool as a button in the bottom of the crucible, after which the physical tests for malleability may be applied.

While the value of borax as a flux, promoting the fusion of the metal, protecting it when fused, and acting as a solvent with the fluid nitrate for the resulting undesirable compounds, such as the above-mentioned oxides and others to follow, is unquestioned, it must not be understood that borax may be added *ad libitum.* For if an excess of the flux is used it not only greatly impairs the safety of the operation by having a tendency to perforate the crucible, but the pouring is greatly hindered and the ingot is often so porous that the plate when rolled will seem to be blistered. This is caused by the molten borax having passed over from crucible to ingot simultaneously with portions of the gold, producing cup-like depressions on the surface of the ingot, which, when passed through the rollers, will be covered by a thin film of metal drawn from the edges, resulting in so-called " blisters."

If ingot-molds are not accessible, a button is desired, and the operator wishes to save time by cooling the crucible and its contents in a vessel of water, it must be done by very gradual means, for if the crucible be suddenly plunged into a large body of cold water much ebullition of the molten mass of gold and flux will follow, during which the gold will become so mixed with the borax as to require a remelting. There is also an element of danger associated with this method of cooling.

If, upon testing, the gold is found to be brittle still it may be remelted in a new crucible lined with borax, and when thoroughly molten a flux consisting of two parts fine powdered animal charcoal and one part ammonic chloride (H_4N Cl.) may be introduced from time to time. Common salt (NaCl.) and mercuric chloride ($HgCl_2$) are also used to supply the desired chlorine in this part of the roasting process; but the former is undesirable in the working of small quantities of gold, and the latter should not be used except when absolutely necessary on account of the danger accompanying the inhalation of the fumes.

During the roasting the flux may be occasionally added to supply the nascent chlorine to the molten mass. Tin, lead, and small quantities of silver are converted into volatile chlorides. The charcoal serves the two-fold purpose of protecting the fused metal from the atmosphere and absorbing large quantities of the gaseous chlorides which otherwise would not be permitted to escape from the alloy.

Parting gold from silver is an ancient process and is now employed in much the same manner it originally was. Granulated argentiferous gold is mixed with a large quantity of common salt and in the presence of heat and moisture chlorine is liberated from the sodium chloride which attacks the silver of the alloy, combining with it to form argentic chloride. This chloride of silver formed fuses readily, and drops off, exposing a fresh surface of the alloy to the action of the gas, so all the silver is in turn converted into this haloid salt, leaving the gold quite pure.

Silver and copper may be extracted from gold bearing it by the use of sulphur. The alloy is heated or roasted as before in a crucible, with sulphur added from time to time. This unites with these metals, forming silver or copper sulphide, while the gold is unacted upon and remains in the bottom as a button, or is poured into previously warmed and oiled ingot-molds.

In roasting with sulphur the operator will be impressed with the necessity of a draught to relieve him of the fumes arising from the furnace.

If after the employment of the above fluxes in the manner directed the metal is found to be still unworkable, and no opinion is entertained as to the specific cause of its bitterness, the process is best gone through again.

If the scraps are in the shape of fillings or sweepings they are to be first collected together and subjected to the passage of a strong magnet several times, to remove the iron and steel in the shape of small particles and fillings that may have been accumulated with them.

The whole is then burned in a crucible to remove organic impurities and the resulting mass ground and fused with dried potassium carbonate which is a solvent for the earthy impurities, and an exceedingly liquid flux. The specific gravity of the metals precipitates them to the bottom of the crucible in the form of a button. This button is then taken through the process described above.

[TO BE CONTINUED.]

PRUDENCE AND GUTTA-PERCHA IN CROWN AND BRIDGE-WORK.

BY DR. GEO. V. I. BROWN, DULUTH, MINN.

[Read before Section VII.—Prosthesis and Orthodontia—Columbian Dental Congress.]

MY desire is to avoid, so far as possible, the detail of mechanical construction and deal with the broad underlying principles that govern the attachment of a foreign substance to a root in the living mouth, as a substitute for nature's perfect crown-work, and the yoking of one tooth to another to support substitutes, and calling upon them to perform duties belonging to the full number.

Experience has certainly given this class of work an unquestioned right to be considered among the useful and therefore reputable operations in the oral cavity; and the query naturally arises, "What has been the effect of this introduction upon the general practice of dentistry?" and a glance at the record seems to prove that the result has been a marked one both for good and for ill.

The benefits have been the preservation and restoration to a state of usefulness of many roots and broken-down crowns of teeth that would otherwise have been lost, thus putting off the evil day when artificial dentures would be necessary.

Again, the result of this effort to utilize such roots has more than anything else influenced the wonderful advance in the therapeutic methods by which they are restored to healthful usefulness, and diseased conditions removed.

An advance has been made, in that while the average dentist was almost totally ignorant of metal plate-work, to-day every student is required to have sufficient skill in this direction to be able at least to make an artistic-looking gold crown. On the other hand, instead of acquiring greater perfection in filling, the temptation has many times been too great to cover teeth with large cavities but good remaining structures in this manner, until the wholesale destruction of natural crowns that might properly have been filled is something terrible to look upon, and unless the tendency be checked yet more terrible to contemplate in its future aspect.

Many times, too, there has been a total loss of good roots and even whole teeth, though injudicious attachment for the purpose of sustaining a strain they were unable to bear.

It is a well-known principle that a thing can be no stronger than its weakest part. This in crown-work would mean that the following points particularly need protection, which the perfect crown must provide:

First—Attachment to secure without fear of dislodgment.

Second—A natural appearance if for the anterior teeth.

Third—Provision against the action of destructive agents at or near the gingival line.

Fourth—Secured against danger of splitting by a band, or its equivalent, by forming the joining surfaces of root and crown in such a manner as to equalize the strain.

Fifth—The imitation of the natural form of the crown upon approximal and occluding surfaces.

Bridge-work embodies dangers, increased proportionately to the greater strain it is necessarily called upon to bear and its difficulty of adjustment, with the added risks of the perhaps doubtful capability of a few roots to perform the natural service of several, besides having to support the sometimes not inconsiderable weight of the attachment, and must be so formed that the collection of particles of food and other readily decomposed matter between the bridge and the membrane covering the ridge under it may be avoided by making the surface self-cleansing so far as possible.

Having enumerated the requirements, an examination of the various methods seems to be in order, and I begin with the broad-sounding but quite true statement that crowns inserted with any of the oxychloride or oxyphosphate cements, without band or other protection at the joining with the root, no matter how secure the pin may be, must be considered as of a temporary nature, for no matter how perfectly the surfaces may be adjusted, disintegration will surely follow, and not only cause loosening of the crown but allow more or less destructive action upon the root itself.

The use of amalgam as a setting is, of course, a great improvement upon cement in crowns of this class, but even amalgam is not always proof against bacterial influences at that critical point, the gingival line, as shown by the frequent failure of fillings. The force of the jaws applied in general use, or an accidental blow, not infrequently causes that most serious of possible troubles, the splitting of the root perhaps beyond repair, unless these crowns are protected with a band, a thing not ordinarily practicable in using amalgam, or by making the end of the root convex, and having a concavity in the crown to fit over it, by grinding slanting surfaces externally and internally from a point in the center, giving a "V" form, or taking some other precaution to equalize the strain so far as possible, and distribute its effects all around the root instead of being applied to one side without the assistance of the support of the other.

The Logan, Bonwill, How, and other *all*-porcelain crowns most commonly used with cement and amalgam as described, have certainly the advantage to some extent in natural appearance, which must be conceded for the six anterior teeth over other methods which require the use of a plate-tooth with backing.

Noting the value of a band for the security of the crown, a special consideration of its application is next demanded.

The perfectly fitting band, as described by the facile pens of writers and the positive statements of discussers of the subject, to the experienced mind, must be much modified to conform to the hard facts of daily practice. Granted that upon a single reasonably sound root, ground down and stripped of its enamel, with the gum in a normal healthy condition, a band can be so fitted that when set with cement there will be but little if any fear of disintergrating action of the secretions; grant still further that this would also hold good where two such roots were situated in the mouth in suitable position, so nearly straight in the jaw as to admit of the completed piece being passed over each at the same time and in the same direction, then ask ourselves how many of all the broken-down and once diseased roots that we desire to save would correspond to that description, and of all the bridge cases we have and are caring for, in how many are the roots so conveniently situated; add to these the consideration that in all other cases more or less opportunity must be offered for the secretions to act upon the cement, knowing as we do that it offers but very uncertain resistance to such action, and we realize at once this weak point in present methods, and the need of some improvement in this direction.

The teachings of Dr. Flagg and his followers, while perhaps going farther than could be generally recommended, have at least been instrumental in establishing the value of gutta-percha in its capability to withstand the action of the acids of the mouth, and as a preservative against caries even where every other filling-material would fail; its only disadvantage being that it wears away too readily in exposed positions; but while its good properties are of the first importance in crown-work, the softness does no harm, because it is protected from wear and will not disintegrate. The advantage may be summed up before proceeding to more detailed description under the following heads:

First—It is impervious to acid secretions or bacterial influences.

Second—Not irritating to surrounding tissues.

Third—Easily removed when necessary.

As against these three there is simply one consideration, viz., the difficulty of adjustment. The value of these properties can best be understood by contrasting with other methods generally advocated.

The system once so positively advanced, but in the light of civilized progress apparently losing advocates, which required the snapping off of natural tooth-crowns, the destruction of pulps by driving a wooden point into the living contents of freshly uncovered canals, and the withdrawal of the pulp with the wood, is to my mind unprofessional to a degree bordering closely upon the barbaric.

The most elaborate piece of amalgam work that I have ever seen, having been under my observation for some months past, has convinced me that first of all such manipulation in average hands would be out of the question; and while I doff my hat in deference to the wonderful ingenuity and great skill which enabled the well-known operator to build solid masses of amalgam from one loose tooth to another, and even across the vacant spaces where teeth had been lost in both jaws, anchoring it firmly, and building up most shapely dummy crowns of this material, it did seem to be a most unnecessary expenditure of talent in view of simpler and much safer methods.

Dr. E. Parmly Brown has undoubtedly done much with his system of porcelain bridges anchored with gold fillings, malleted about a bar extending into the tooth, and here again is an example of what individual skill can do; but, from the standpoint of the less skillful average practitioner, there are some points which seem to need criticism in comparison with other needs.

For firmly fixing the position of teeth loosened by pyorrhea, bands carefully fitted, soldered together, and cemented in place are a step in advance, but they also allow the pressure upon the crowns to work to their disadvantage, and the cement gives out so soon that they can hardly be considered of any paramount value.

Filling with gold about a gold wire imbedded in the cutting-edges of lower incisors is not only an exceedingly laborious, but it is also a difficult and uncertain operation to impact the gold securely when the teeth are not held so firmly that movement is next to impossible; and it is almost an impossibility to do it, because not only are such teeth capable of forward and backward, lateral and circular movement, but upward and downward as well, and thus making a very poor resistance to the necessary force in condensing the gold, without which the operation is valueless.

The anchoring of amalgam upon each side and building across from one to the other, even in most skillful hands, seems to be insufficient except in very favorable cases, besides being, as already stated, most unsightly. But by dressing the sides of the tooth as straight as possible up and down, grinding enough of the cutting-edge to allow of a covering of gold without interfering with the occlusion, and beveling to let the enamel-edge hide so far as possible the gold covering, a metal die made from a cast and perfect impression, the crown of gold plate struck up and made to accurately fit the cast, and the front part afterward cut out, these all put in place in the mouth, an impression taken and all soldered together, then set with gutta-percha, the result is that each tooth not only is firmly held in position with its neighbor, but the edges are so covered that no upward and downward movement can occur, and we know that gutta-percha, while it may wear off a little at the exposed edges, will not disintegrate under the gold covering, therefore that operation may be regarded as a permanent one, besides being less unsightly than most of the other methods, which do not require cutting off the tooth.

This method applied to the abutments for bridges where any of the anterior teeth remain in a condition sufficiently sound to warrant preservation of the natural crown avoids the destruction of nature's handiwork as shown in a living, nourishing, healthful pulp, and natural tooth structure; gives an attachment that is absolutely secure, and proof against every force that may be applied without fear of checking porcelain fronts; can be carried up beyond the gingival margin, left a little short of it, or taken to the enamel line just as the surrounding conditions seems best to warrant, because of the trustworthiness of gutta-percha under the fire of the secretions.

To one accustomed to the use of cement for this purpose, the difficulty of applying gutta-percha as a substitute seems almost insurmountable; but a moment's recollection of the trials attendant upon the setting of his first crowns will recall the fact that cement too had its difficulties for the beginner.

For gold crowns, where teeth are covered entirely, I prefer the red gutta-percha we get in form of sheets. It has a degree of toughness that is valuable, but for anterior crowns with open faces the red line at the edge of the openings is undesirable, and I therefore use some white preparation that softens at a low temperature, as this property greatly facilitates its handling in the mouth. There being no danger to apprehend from wear, hardness is not so desirable as for filling.

It is my custom to heat both crowns and setting-material upon a tray to protect from the open flame, spread with warm instruments a thin coating over the inner surface of the crown, which should be first roughened on the inside by scratching with an instrument, aiming to have as nearly the exact amount necessary as possible, but depending upon a vent to get rid of a small amount of surplus; then, after drying the surface of the teeth with alcohol and warm-air blast, wipe with some suitable germicide, saturate a pledget of cotton in eucalyptus, coat the surface with it to prevent the too-rapid drying of the chloro-percha, of which a thick solution is then applied around the neck, so that when the crowns, already heated as hot as they can be handled in the fingers, and prepared as described, are driven home, the eucalyptus, chloro-percha, and gutta-percha in the crowns will form a thick creamy mass that will penetrate and perfectly fill every space about the necks, and, even if surplus be not removed afterward, will not cause irritation as might a particle of cement in the same position.

Sometimes too much gutta-percha will prevent the crown going quite into the proper position, just as sometimes happens with cement; but the remedy is much simpler, because easily removed while still warm; or if, for accidental or other causes, removal be desired afterward, hot water or hot air applied will in a short time heat the metal sufficiently to soften the material and facilitate the separation without the necessity of damaging the crown, and any one who has tried to pull them off without first warming will be quite satisfied that any properly adjusted crown can be securely held in this manner.

DISCUSSION.

Dr. J. A. Dunn (Chicago) asked the essayist if he had ever had trouble in putting on crowns because of the difficulty of exactly judging of the exact amount of gutta-percha which would be needed.

Dr. Brown said yes, frequently; but that with gutta-percha it was an easy thing to remove the crown, take out some of the gutta-percha and soften and slip it on again. With cement it was just as likely to happen, and the removal was a work of considerable trouble.

Dr. Dunn asked if he had ever experimented with oxyphosphate cement combined with a chloro-percha in crown and bridge-work.

Dr. Brown said he had, but had found that the cement would disintegrate. He had used it for cementing porcelain inlays with good results.

Dr. A. E. Matteson said he had had considerable experience with the use of gutta-percha in fixing crowns to natural roots. He used the base-plate gutta-percha as gotten from the depots, and moistened it with eucalyptus oil. He used the eucalyptus oil prepared by Saunders of London, for he found that as prepared by some dealers it would not soften the gutta-percha. He did not make a solution of it as in chloro-percha, but used it as you might a lubricant, moistening the root with the eucalyptus and filling the crown with as much gutta-percha as he thought necessary, and allowed the bite to force it to place. If there was not the right quantity of gutta-percha, the crown could be easily swept off and the correction be made. It was difficult to heat the crown so as to soften the gutta-percha without running a danger of cracking the tooth, but with this method the crown could be lifted off without heating. To set the crown originally he heats in a sand bath.

One of the advantages of using gutta-percha for cementing crown and bridge-work to the natural teeth is when in after-years the supporting tooth needs a filling, which is a frequent necessity, then the gutta-percha can be easily softened by the application of a pair of forceps, the beaks of which have been heated and the crown lifted off.

Dr. Dunn said he was in favor of setting crowns with gutta-percha. He thought there was less liability of pulpitis in the case of a crown on a tooth with a living nerve when it was put on with gutta-percha, as this material was a defense against the shock of thermal change.

Dr. Goddard (San Francisco) said he had had no experience with setting crowns with gutta-percha, but years ago when pivot teeth were in use he would put a coating of gutta-percha over the top of the root to fill up the interstices between the pivot tooth and the root. In theory we made the fit exactly, but practically it is impossible to do this. The gutta-percha, however, filled it perfectly and kept all moisture out, with the effect of preserving the tooth. He also set the Logan crown in the same way, and is convinced that it is the best way. He considers Hill's Stopping the best gutta-percha for the purpose. With the Logan crown it fills securely the space between the pin and the wall and the space between the crown and the tooth; if an excess is crowded out it can be trimmed away when it gets hard. Flagg's "Low Heat" gutta-percha is perhaps even better than Hill's Stopping; it takes a little more heat to soften it, but it is harder and firmer.

Dr. Matteson (Chicago) advocated the use of gutta-percha and the oil of cajeput for root-filling. He described a method of heating a band of a crown for the purpose of removal, by a minute flame produced by the burning of alcohol on a fiber of cotton projecting from a drop-tube. The flame, not larger than the point of a pencil, could be directed against the crown without danger of burning the surrounding tissues, and heat sufficient to soften the gutta-percha would quickly be produced right where it was wanted.

Dr. Brown was asked what means he used to heat a crown that had been on for some time, when he wanted to remove it. He said that he used to employ hot water and a syringe. It was necessary that the water should be so hot that the patient was liable to complain of the heat. In order to lessen the shock he would usually have the patient rinse out the mouth first with water as hot as could well be borne, then the shock of the still hotter water from the syringe would not be felt so much. Now he uses the Richmond hot-air apparatus, and putting napkins in the mouth to protect it, heats the crown quite hot and lifts it off.

Dr. Oliver thanked the essayist for the paper. He said that gutta-percha had recently fallen into disfavor with the dentists and he was glad to have its good points brought out, as it was too valuable to be allowed to fall into disuse. He thought it best in setting a crown to leave about one-eighth of an inch between the margin of the band and the gum, because it would be more easily kept clean.

Dr. Burne (Sydney, New South Wales) said that thirty years ago Dr. D. D. Smith was teaching students in the Philadelphia Dental College to fasten pin teeth in roots with gutta-percha, and to his own knowledge those teeth were serviceable for years, and when one of them broke it could be taken out and a new one put in. He commended the paper, and was glad to note the tendency to return to gutta-percha from oxyphosphates. When he had to remove a bridge which had been fastened with oxyphosphates he always found a very disagreeable odor permeating the whole mass of the cement, and this was not true in the case of those fastened with gutta-percha.

Dr. W. P. Smith spoke of a case of his for which he had made bridges for both the upper and lower jaws. He found the lower bridge worked loose, and replaced it with oxyphosphate cement to strengthen it and gutta-percha for cementing the bands onto the teeth.

TIN FOIL FOR FILLING TEETH.

BY DR. H. L. AMBLER, CLEVELAND, OHIO.

[Read before Section VI.—Operative Dentistry—Columbian Dental Congress]

WHEN we take a retrospect and consider what a poor excuse tin foil was twenty or more years ago, we do not wonder that it failed so often to make tight, good-wearing fillings. When it came from the manufacturer it looked fairly bright, but after being exposed to the air it assumed a light brassy color, and lost what integrity it formerly possessed. No. 4 was generally used, but it would cut and crumble in the most provoking manner. At that time fillings were made by using mats, cylinders, and hand pressure, similar to the use of non-cohesive gold, and it was very difficult to insert a respectable approximal filling. Several years ago a radical change came about, for which the manufacturers should have their share of credit, as with the tin we now have, you can begin at the base of any cavity and with mallet or hand force produce a filling which will be one compact mass from beginning to end, so that it can be cut and filed the same as gold, though not with so hard a surface as gold. Tin adheres, coheres, or welds, call it what you please, makes a saving, solid, tight filling, and with less malleting than gold requires, for if over-malleted, the receiving surface is injured. It is a good material for filling many cavities in temporary teeth, and children will bear having it used, because it can be done quickly and does not require much mallet or hand force to condense a single or double layer of No. 10. Up to the age of fourteen, or longer, we find many teeth which are quite chalky, with the oral fluids in such a condition that oxychloride and oxyphosphate do not last long, and for some reason amalgam and gutta-percha soon fail. In all such cases we recommend tin, even in the incisors, for as the patient advances in years the tooth-structure generally becomes more dense, and if desirable the filling can be removed, and good saving operations made with gold. Approximal cavities in young teeth, filled with cohesive gold by good operators, often fail in one or two years, but filled with tin the teeth are preserved. In approximal cavities attacked by white decay, the most formidable variety known, we would separate freely from the palatal or lingual side and fill carefully with tin.

It is invaluable when you are limited for time or means, and also for filling the first molars, where we so often find poor calcification. Dr. S. B. Palmer says, "Tin not only arrests decay mechanically, but in frail, chalky structure acts as an anti-acid element in arresting the electric current set up between the tooth-structure and the filling-material. We *often* find the dentine beneath fillings which have been removed, considerably discolored, and greatly solidified as compared to its former condition, and we believe this condensation, or calcification, is more frequent under tin than gold. We have seen cases where the pulps had calcified under tin, and it has been known for years that tin would be tolerated in large cavities very near the pulp without causing any trouble. In many mouths tin does not oxidize, but retains a clean gray color. The objectionable color assumed where it does oxidize, is offset by the fact that the oxide fills the ends of the tubuli and often arrests further decay. Where fillings are subject to great attrition, they wear away sooner or later, but they can easily be replaced, and, as the portion against the walls is the last removed, further decay is prevented as long as there is any reasonable amount of tin left, and if the tooth-structure has become sufficiently solidified, you can cut proper anchorage and cover the tin completely with gold. It may be driven into or unto the tubuli, so as to completely close them from outside moisture, and often the tin takes such a hold that it requires a cutting instrument to remove it.

The extra tough foil now manufactured retains a bright surface, and does not lose its good qualities even after considerable exposure to the atmosphere, but we prefer to prepare only what is needed for each case, keeping the rest in the book placed in an envelope. Tin of this kind, well condensed by mallet or hand force, stays up against the walls of a cavity and makes a tight filling, and ought to be called perfect, because it preserves the tooth, probably expanding and contracting less than gold, and giving a surface which will wear from five to ten years, depending upon the size and location of the cavity. Buccal cavities in the first molars, and palatal cavities in the incisors, filled for children eight years old, are still in good condition after a period of fifteen years, and we have seen fillings twenty-five years of age. Strips of No. 10, from one to three thicknesses, can be welded together, cohering as well as semi-cohesive gold, or better, and can be manipulated much more rapidly; therefore, if desirable, you can produce any contour.

Some operators have advocated using gold and tin folded together in alternate layers, thus exposing both metals to the fluids of the mouth, claiming that fillings can be made quicker and are not as subject to thermal changes, and can be inserted nearer the pulp than when gold is used. These claims are entirely met by using tin alone. Others say that this union of gold and tin will preserve the teeth quite as well as a correct gold filling, but we do not see that it offers any advantage over either tin or gold, except that it wears somewhat longer than tin.

Instruments with square ends and sides, and medium serrations are best adapted for hand force, and the majority of mediumly serrated hand mallet instruments will work well on No. 10 tin of one, two, or three layers, using a four-ounce mallet with a fair, steady blow; but the force of blow will be guided by practice, thickness of tin, size of instrument, and depth of serrations. You must have absolute dryness and use care, not thinking because it is *tin* that it will be all right anyway. Fold the tin into strips of different widths, thicknesses, and lengths, according to size and location of cavity, but for a large crown or approximal cavity the strips may be folded into mats or rolled into cylinders; but as more force is required to condense them, we generally prefer strips for frail teeth. To make the most *pliable* cylinders, cut a strip of any desired width from a sheet of foil and roll it on a broach, cutting it off to make cylinders of different thicknesses. When the cavity is full, go over the tin thoroughly with mallet or hand force, cutting down crown fillings with burs or corundum-wheels, and approximal fillings with sharp instruments, emery strips or disks. After partly finishing, give the filling another condensing with the burnisher, then a final trimming and moderate burnishing. By trimming fillings before they get wet you can remedy any defects, with a sharply-serrated plugger and thin strip of tin as easily as with gold.

Generally cavities are prepared the same as for gold, except that the groves or pits should be a trifle larger. Many cavities can be filled with less excavating than required for gold, and some approximal cavities in bicuspids and molars can be well filled without removing the masticating surface. Here especially the cavities should be cut square into the teeth, so as not to leave a feather edge of tin when the filling is finished; but usually we cut the cervical margin down to a smooth strong edge, even if it goes beyond the gum or enamel margin. Now cut a *slight* groove across far enough from the margin so that it will not be broken out, make each end of this groove square or with *slight* pits, then from each pit cut a groove which will extend to the masticating surface. In nearly all approximal cavities in bicuspids and molars you will find some form of matrix of great advantage. By driving the tin firmly against the matrix you secure a well-condensed surface, and the teeth will move apart *slightly*, so that with a bevel or thin plugger you can force the tin between the matrix and the edge of the cavity, and thus be sure of having a tight filling, and plenty of material to finish well; then after removing the matrix condense with thin burnishers, and complete the finish as for gold. Where no matrix is used, or where it is used and removed before completing the filling, it is well to trim the cervical border, for in either case there is more light and room to work when only a portion of the cavity has been filled.

Be sure of all margins as you progress, and if the cavity is deep and a wide matrix shuts out the light, use a narrow one which can be moved toward the masticating surface as the work progresses. In the incisors and cuspids where the labial or palatal wall is intact, this matrix can be bent at either end, as the case requires, so as to make room for operating. We prefer to save the labial wall and line it with five layers of semi-cohesive gold folded into a mat and extended to the outer edge of the cavity; this gives the tooth a lighter shade.

Bicuspids can be treated in the same way, a method originally used by Dr. Corydon Palmer. The tendency to crush or slide out during the process of filling is entirely overcome by using a matrix. We find that tin prevents further decay at the cervical margin of deep cavities oftener than any other metal or combination of metals. We fill from one-fourth to one-half of the cavity with tin, completing with gold when the tooth is of good structure, which gives all the advantages of gold for a masticating surface. Have the tin solid and square across the cavity, and the rest of the cavity of a good retaining form, the same as for a gold filling; then begin with a strip of gold slightly annealed and mallet it into the tin, but do not place too great reliance upon the connection of the two metals to keep the filling in place. We have sometimes filled incisors and cuspid approximal cavities along the labial margin with gold when the tooth was of medium structure. The fee should be reasonably large, for you can save many teeth for a longer time than with cohesive gold. Every good dentist, with a little practice, can accomplish all that the writer claims can be done, as there is no special secret connected therewith.

DISCUSSION.

Dr. E. T. Darby.—The author of this paper has certainly paid a very high, and I don't know but a very worthy tribute to tin. There is nothing new in the paper, as far as I know; the use of tin almost antedates the use of gold as a filling-material. The French first used lead, then tin; tin was used as early as 1800 in this country, to the exclusion of almost every other material; in the earlier years of my practice tin foil was used a good deal and amalgam very little; there was a prejudice in the minds of many practitioners against the use of amalgam, because it was composed of equal parts of silver and tin combined with mercury. Consequently, the chief metal used was tin. Soon after I began to practice for myself, some one suggested to me a good method for preparing tin. Make an ordinary sand mold and then melt chemically pure block tin in a spoon and pour it in this mold, making the tin in the form of a corundum-wheel. This is put on a lathe, then with a very sharp chisel the tin is turned off, making shavings as thin or thick as desired. They can be made exceedingly thin, and are exceedingly tough.

During my college days some members of the faculty said tin would weld, and others said it would not. I took a tooth to my room, cut the crown off, and invested the roots with plaster of Paris, restoring the whole crown to its natural size. With tin foil I polished it up nicely, then took it to one of the professors who questioned the cohesive properties of tin, and said to him, "This tooth has been built up with ropes of tin on two retaining points." He said, "You have melted that tin." I said, "No, sir, I built that up in my room under the eye of some of my college-mates, and it has been done as I said." He expressed surprise. I have kept that tooth, and show it every year as one of the evidences of the cohesive properties of tin.

I have always said that tin was one of the very best filling-materials we have. I believe more teeth could be saved with tin than with gold. Whether tin possesses the antiseptic properties in as great a degree as is claimed by many, I sometimes question, but I do know that tin has a saving quality that we do not always find in gold. The method of combining tin and gold is not used. Dr. Jenkins, of Dresden, was the first advocate of filling teeth with tin and gold. I have been in the habit of combining tin and gold in some cavities, but I do not see any especial advantage in it. I cannot see that the filling is any better by incorporating the gold with the tin. There is but one disadvantage that tin possesses, so far as I am aware, that is, its color, but in all approximal cavities that are exposed to view I believe the average dentist will do as well with tin as with gold. I believe if the dental profession would use more tin they would save more teeth. For children's teeth I know of nothing better for masticating surfaces. A good tin filling will condense upon the masticating surfaces of children's teeth, and I think save them better than anything else. I should use it much oftener than I do if it were not unsightly in the mouth. I indorse heartily and emphatically the tribute which the essayist has paid to tin.

Madame Tiburtius Hirschfeld (of Vienna) heartily indorsed the use of tin and gold, after a practice with this material for twenty-four years. Like Dr. Darby, she tested the cohesive properties of tin by building up some crowns with this material. Her practice has been mainly for children and ladies, and she thinks for filling children's teeth there is no better material than tin and gold; sometimes these fillings were put in when the child was seven or eight years old, and at the age of seventeen the fillings were still perfect. She makes a filling of tin and gold that looks nearly as yellow as gold; for this filling two sheets of gold No. 4 and one of tin, *very thin*, are used; it looks just as bright after having been worn two years as when first put in.

Dr. R. R. Freeman (Nashville, Tenn.)—You don't know how happy I feel to hear the subject of tin foil brought up before this Congress. I learned something of tin in the early school, when I had the honor to be upon the stage with Madame Hirschfeld, when we received our diplomas. I have written upon tin foil, I have talked upon it and advocated its use. I remember Dr. Truman said that tin foil was one of the best fillings, not excepting gold. I know what it is doing, and I know what it has done for twenty-five years.

All through our southern country we have those who are using tin foil for its therapeutic properties; it has that healing property for the dentine of children's teeth, that hardens them, and it has been only a few years ago that one of our best practitioners said, "I must acknowledge that tin does retain teeth." A very wealthy family was once summering with me, and while there, their teeth needed some attention; some of the teeth looked dark, and I found that the teeth were decaying. It was with considerable effort that I tried to save those teeth; and their dentist came to me with the inquiry why I had filled teeth for patients with tin, who were abundantly able to pay for gold. I told him, in order that the teeth might become developed and hardened under the tin, and that it did so was evident by the trouble he had in trying to cut away the tin fillings. I remember reading an article by Dr. Chase, of St. Louis, in 1869, advocating the placing of tin over sensitive dentine, in order to secure a gentle galvanic action; the galvanic action was said to be therapeutic, and hardened the teeth. I remember a case in which I tried it. I made a tin disk and adjusted it very nicely over the soft dentine, and proceeded to fill the tooth with gold. After removing the rubber-dam, I found the tin had slipped out to the margin and made a form like a crescent. It was for one of a family whose teeth were exceedingly soft; this was a very bad tooth, and was very sensitive at the time. I called the patient's attention to the fact, and watched that tooth with considerable care, and after three or four years I had to renew the fillings of teeth that had not been so lined; but this tooth was in a perfect condition, and it stands to-day since 1869, a perfect tooth at the cervical margin. I am glad to give my testimony in behalf of tin foil.

Dr. Albert H. Brockway (Brooklyn, N. Y.)—I am especially pleased with this paper, but we must not forget we have a great variety of cavities to fill, in a great variety of situations, in a great variety of teeth of different characters, so that if you are to do the best thing for the patient, be extremely eclectic in practice. It is for us to determine what to use for a given case under given conditions. I am a strong believer in the use of foil in such cases as will admit of it; I use it more or less, and I use it for two reasons especially. The first is from its adaptability and facility with which a saving filling can be made in favorable cases. I am also inclined strongly to believe in its therapeutic properties. I am not so sure of this, but experience seems to bear it out. In soft, chalky teeth, where the conditions are not favorable for tin, we have to resort to other materials. I use it especially in children's teeth, in cases where tin foil has been strongly recommended, and in which recommendation I quite agree; but there are many cases in children's teeth, where it seems to me that tin foil could not be used so successfully as other materials, notably gutta-percha. I wished simply to speak of the limitations of the usefulness of tin foil.

Dr. Gordon White (Nashville, Tenn.)—I claim for tin, after having used it for nine years, that it is the best filling-material that has yet been given our profession, excepting that it will not stand friction; I think it is the best tooth-preserver that we have. When I first used it I combined it with gold, and I found that the two foils worked very harshly in my hands; after using it a couple of years that way, I commenced to use the foils separately, covering the tin with gold. I find it works very much softer when the foils are not introduced separately.

Dr. C. S. Stockton (Newark, N. J.)—It is not necessary for me to go over the ground so well covered by Dr. Darby; but there are people who come to me who are unable to pay the large fees that are requisite where you would use gold. I recall two fillings that I saw only a short time since, which were put in twenty-three years ago, I think. I filled those teeth by a plan recommended by Dr. Palmer, using mats of Abbey's soft foil packed up against the labial surfaces of the enamel, filling the balance of the teeth with tin foil. They are in as good condition to-day as they were twenty-three years ago. It is necessary and right to save the teeth of those who are unable to pay the large expense of gold-work, and if we have a material that will save teeth it seems to me it is our duty to use it. Tin is one of the best materials for saving teeth, and we should use it more than we do.

Dr. St. George Elliott (London, Eng.)—It is to me a very great pleasure to return to this country and find that tin is at least beginning to have a larger number of advocates. In Europe we all look upon Dr. Abbot, in Berlin, as the father of modern dentistry there; he was one of the earliest, though not the first, to use tin foil, and he did so very successfully; he carried it out in his own practice, and his son-in-law, Dr. Miller, took it up, as did also Dr. Jenkins, of Dresden. For ten years I have used it very largely; I have averaged from four to six fillings a day. The greatest advantage of tin and gold has not been spoken off; you know if you get a preparation of tin and gold in correct proportions there is practically a chemical union between the two, and you get not only hardness but a certain amount of expansion. It is exceedingly valuable in filling crown cavities of molars. Its hardness is not immediately gotten; it takes from one to three years to harden. Its color is its disadvantage; it approaches that of amalgam. If you will use certain proportions you will get a better color, but you get it at the expense of hardness.

Prof. James Truman (Philadelphia, Pa.)—It is with a great deal of gratification that I find even at this late day, after forty years of practice in the use of tin foil, that it is coming up again with honor. I have long been satisfied that the profession has lost much in the abandonment of this material; perhaps the reason has been largely due to the fact that tin foil originally, as my friend Dr. Darby said, was not well made; then again, less attention was paid to having the surfaces clean, and also from the fact that very few who practiced with this material used it as I would, that is strictly upon the cohesive principle. In using the tin foil on the soft gold plan, it is necessary as far as my observation goes that the foil be packed in the cavity as solidly as gold. When this is accomplished, you have a filling that will resist mastication upon any surface. I have tested this for years, and I find that masticating surfaces filled with this character of material last from twenty to twenty-five years perfectly. The therapeutic properties of tin foil have been spoken of, and I believe that there is a chemical action on the tooth-structure, but what that is I am not prepared to say. You will find tin foil much better adapted for use in the case of soft teeth. It has been asserted that it is better for children's teeth, but I would place it in all teeth except the anterior teeth; they can be better filled with it where the teeth are of soft character than with any other filling. Instead of using so much amalgam as we do, take tin, and it will be found more useful than gold in many respects. I agree with my friend in regard to its use at the cervical border. I remember in Dresden, in Dr. Jenkin's office he said to me, "I cannot, as some other men do, preserve the cervical border of teeth with gold, and therefore I invariably use tin and gold."

One word in regard to tin and gold. I have used it a good deal, and have seen Dr. Abbot operate with it in Berlin, and I know a good deal about Dr. Miller's use of it, and I am satisfied that it is a most valuable combination. It can be placed in wet, and if it is placed in wet it is better than when dry. owing to the actions of the fluids of the mouth producing galvanic action between the two metals, that produces hardness. I remember once I had occasion to remove an anterior approximal filling of Dr. Abbot's, and I found that the tin and gold was as hard as any amalgam filling I ever saw, and I had great difficulty in cutting it out. That was due to galvanic action between the two metals. I feel gratified that this matter has come up this afternoon.

Dr. Jarvie (Chairman.)—A question is asked if tin is cohesive under water?

Dr. Truman.—Not very well, but I have filled cavities under water. If you make a filling from shavings, you get the most cohesive property possible.

Dr. A. W. Freeman (Chicago, Ill.)—None have yet spoken of finishing tin foil with gold, that I remember. I fill approximal cavities nearly full or three-fourths full oftentimes with tin and gold or tin alone, and then finish with gold, using sometimes first a little soft gold and then finishing with cohesive gold. If you have your masticating surfaces carefully prepared, and if you are careful about some little undercuts, you can very often make a filling that will be just as durable as any gold filling. I have been surprised in looking back over my experience for eight or nine years to see how tin and gold, finished with gold, has preserved the teeth. The first cases I remember to have had my attention drawn to were by Dr. Allport. He said he used cohesive gold on the outside; now we use more tin and less gold, but always wrap the tin on the inside of the gold.

I indorse the use of tin and gold, and especially do I believe in its chemical action.

REPORTS OF SOCIETY MEETINGS.

MIDWINTER FAIR DENTAL CONGRESS.

THE General Committee of the Midwinter Fair Dental Congress met at the office of Dr. Thomas N. Iglehart, No. 713 Sutter street, Thursday, January 18, 1894, Chairman L. A. Teague in the chair.

Announcement was made of the appointment of the

ASSOCIATION DAY COMMITTEE.

Dr. A. F. Merrimen Jr. (Chairman)	Oakland
Dr. F. C. Pague	San Francisco
Dr. H. D. Noble	San Francisco
Dr. C. C. Dennis	San Francisco

The Executive Committee reported upon Constitution and By-laws, but desired more time to thoroughly finish their work.

In the case of Dr. J. Marion Edmonds, against whom charges have been preferred, and which matter was placed in the hands of the Executive Committee for investigation, Dr.

Roberts, the chairman, asked for further time, which was granted.

Dr. William J. Younger was made Chairman of the Finance Committee, vice Dr. Edmonds.

Apropos of an editorial in the January number of the Pacific Coast Dentist, entitled "A Midwinter Fair Dental Club," Dr. Younger, in one of his characteristic speeches, moved that it be the sense of the committees there assembled that such an organization was not only desirable, but an actual necessity, and that a committee of three be appointed to perfect the necessary arrangements for and conduct the club in a manner becoming to the importance of its association. The following were appointed the

DENTAL CLUB COMMITTEE.

Dr. William J. Younger (Chairman)	San Francisco
Dr. Joseph D. Hodgen	San Francisco
Dr. C. W. Hibbard	San Francisco

The following were also appointed to constitute the

PUBLICATION COMMITTEE.

Dr. C. W. Hibbard (Chairman)	San Francisco
Dr. Fred. Teague	San Francisco
Dr. R. W. Meek	Oakland

Meeting adjourned to meet Thursday evening, February 1, 1894, place to be appointed by the chair.

The General Committee of the Midwinter Fair Dental Congress met in Parlor A, Palace Hotel, Thursday evening, February 1, 1894, Chairman L. A. Teague presiding.

This was the best attended and most enthusiastic meeting that has been held.

The membership committee reported its intention of procuring a button-badge of some character suitable for the members of the Congress to wear, and by which they would be known and admitted to the meetings.

Several other committees made good reports of progress and general interest.

The Executive Committee reported on Constitution and By-laws. The following was then read clause by clause, and, after some changes, adopted, as that by which the Congress would be governed:

CONSTITUTION MIDWINTER FAIR DENTAL CONGRESS.

ARTICLE I.—NAME.

This convention shall be known as the Midwinter Fair Dental Congress.

ARTICLE II.—PLACE OF MEETING.

San Francisco, California.

ARTICLE III.—TIME OF MEETING.

Monday, June 11th, to continue in session five days.

ARTICLE IV.—OBJECT OF THE CONGRESS.

The bringing together, for professional, scientific and social purposes, the dentists of the Pacific Slope, and the world.

ARTICLE V.—OFFICERS.

The officers shall consist of President, twenty-four Vice-Presidents, Secretary, Assistant Secretary, Corresponding Secretary and Treasurer.

ARTICLE VI.—MEETING OF GENERAL COMMITTEE.

The General Committee shall hold its meetings at such times and places as may be appointed by the chair.

ARTICLE VII.—DUTY OF THE PRESIDENT.

It shall be the duty of the President to act as Chairman at all meetings of the General Committee. He shall be the chief executive officer and ex-officio member of all committees. He shall have the power to call a meeting upon the advice of three members of the committee.

ARTICLE VIII.—DUTY OF THE SECRETARY.

SECTION 1. It shall be the duty of the Secretary of the General Committee to keep a record of all proceedings. To receive and put in proper form for the use of this committee a synopsis of the work accomplished from time to time by each of the special committees. To receive and receipt for all money and pay the same to the Treasurer, who shall give a receipt therefor.

SEC. 2. The Corresponding Secretary shall attend to all correspondence of the General Committee, and notify officers and members of committees of time and place of meeting.

ARTICLE IX.—DUTY OF TREASURER.

It shall be the duty of the Treasurer to receive from the Secretary, to receipt for and have in charge, all money for, or belonging to the Midwinter Fair Dental Congress, and to pay out the same on the order of the President and Secretary, all bills or demands having been passed upon by the Executive Committee.

ARTICLE X.—POWER OF GENERAL COMMITTEE.

The General Committee shall have and exercise supreme control and direction in all matters pertaining to organization and work.

ARTICLE XI.—QUORUM.

Nine members shall constitute a quorum for the transaction of business.

ARTICLE XII.—Amendments.

These rules may be amended at any regular meeting of the General Committee by a two-thirds vote of those present.

ARTICLE XIII.—Names of Committees.

Transportation Committee,
Publication Committee,
Association Day Committee,
Finance Committee,
Canvassing Committee,
Invitation Committee,
Editorial Committee,
Local Arrangement Committee,
Programme Committee,
Reception Committee,
Membership Committee,
Auditing Committee,
Executive Committee.

By-Laws—Duties of Committees.

Duties of Executive Committee.—This commitee shall constitute a court for the trial of any member charged with the violation of the Code of Dental Ethics. Examine the financial accounts of Treasurer and Finance Committee, and transact such other business as may be committed to them by the General Committee.

Transportation Committee.—The duties of this committee shall be to call on the railroad and steamship companies and obtain the best rates possible for the members of this Congress, both in this State and other States.

Editorial Committee.—The duties of this committee shall be to revise all papers, essays and other documents offered to the Congress, and to transmit such as are intended for publication to the Publication Committee.

Publication Committee.—It shall be the duty of this committee to publish all literature submitted to them by the Editorial Committee, to arrange all matter for the public press, and attend to the printing and issuing of all circulars, notices, or any other matter necessary to be printed. All public announcements shall bear the signature of the Preident and Secretary.

Association Day Committee (Under head of Committee on Local Arrangement.)—All circulars issued by any committee must be sent to each member of the General Committee, and shall be of the size and form issued by the Secretary.

Programme Committee.—It shall be the duty of this committee to arrange the time for all entertainments, clinics, or reading of papers, and to prepare a daily programme.

Local Arrangement Committee.—It shall be the duty of this committee to make arrangements for the accomodation of the various committees and clinics, and perform other duties of like character, and to work in conjunction with the Midwinter Fair Congress Auxiliary.

Finance Committee.—This committee is authorized to guarantee to each member a copy of the Transactions; to make collections of money, and deliver the same to the Secretary.

RECEPTION COMMITTEE.—It is expected that this committee will take charge of the comfort of all the members of the Congress, and especially those members and strangers from other States.

INVITATION COMMITTEE.—The duties of this committee shall be to invite such scientific persons, members or non-members of the profession, who by their recognized attainments in special departments of science, would add to the interest of the meetings. They shall furnish Committee on Membership with a list of the names and residence of those invited.

CANVASSING COMMITTEE.—The duties of this committee shall be to procure names and to submit them to the Membership Committee.

MEMBERSHIP COMMITTEE.—The duties of this committee shall be to pass upon all applications for membership which may be referred to them by the Canvassing Committee. They are authorized to issue a certificate of membership upon the payment of five dollars, and to pay the said amount to the Secretary.

Respectfully submitted,
SAMUEL H. ROBERTS, Ch. Ex. Com.
THOMAS MORFFEW,
W. F. SHARP,
J. M. DUNN.

Looking to permanent organization, a Nominating Committee, consisting of Drs. J. D. Hodgen, Thos. N. Iglehart, C. L. Goddard, Wm. J. Younger and M. J. Sullivan, all of San Francisco, was elected by ballot, to report at the next general meeting, to be held in Parlor A, Palace Hotel, Thursday evening, February 22, 1894.

Adjourned.

COMMITTEEMEN DINE.

THE committeemen of the proposed Midwinter Fair Dental Congress held a dinner in the red-room of the Bohemian Club, Saturday evening, January 13, 1894.

Covers were laid for just twenty, and a very enjoyable evening was spent by all present.

Dr. William J. Younger officiated as toast-master, and after some very appropriate remarks, a flash-light photograph of the guests at table was taken by Mr. Davey of Taber's. Dr. L. A. Teague was then called upon to respond to the toast of the Midwinter Fair Dental Congress, which he did in some very happily chosen sentences.

The next toast was to the PACIFIC COAST DENTIST, and while the editor was on his feet a shameful advantage was taken of him. Another flash-light photograph was discharged. Whether this was intentional or not, we are too modest to say. Let it suffice that a very fine specimen of the same, nicely mounted, was presented to us by Mr. Davey, for which he has our thankfulness. Dr. Hodgen spoke of the intentions of the PACIFIC COAST DENTIST during the coming year, upon the conclusion of which, three cheers were given. Nothing like a little dinner to make things cheery.

Dr. Russell H. Cool of Oakland responded to the toast, "The Oakland Dental Club;" Dr. J. W. A. Lonburg, "In Reminiscence;" Dr. R. Beverly Cole, "The Status of the Dental Profession;" Dr: Thomas Morffew, "The State Board of Dental Examiners."

Several other toasts were made and all adjourned, the better for having dined together.

THE OAKLAND DENTAL CLUB.

THE Oakland Dental Club was organized Tuesday evening, January 9th, at the office of Drs. Merrimen. The election of officers resulted as follows: Russell H. Cool, President; R. W. Meek, Vice-President; Dr. Bois, Secretary; Cecil Corwin, Treasurer.

An interesting paper was read by Dr. F. O. Jacobs.

CALIFORNIA STATE BOARD OF DENTAL EXAMINERS.

INASMUCH as the law regulating the publishing of the report of Dental Examiners of the State of California has been changed (see PACIFIC COAST DENTIST, Vol. I, p. 300), making it biennial instead of annual, a brief recounting of the Board's actions is herewith given in answer to the many letters and queries received, together with the names, date and present place of practice (as well as known at this office) of all those registered since the issuance of the last annual report:

MEETING OF DECEMBER 16TH, 1892.

The following were granted license on diplomas:

Elliott, D. Carter, Concord, Contra Costa County.
Gray, D. H.
Gray, C. F.
Arbeely, Habeeb J., Monrovia, Los Angeles County.
Hart, A. C., San Francisco.
Sylvester, A. J., San Francisco.
Jacobs, Saul R., San Francisco.
Bauer, Chas. F., San Francisco.
Payne, Clyde S., San Francisco.
Martin, Wm., Oakland, Alameda County.
McCargar, Richard, San Francisco.

MEETING OF MARCH 11TH, 1893.

The following were granted licenses on the endorsement of their diplomas:

Suggett, A. H., Marysville, Yuba, County,
Schlott, E. F., San Francisco.
Taylor, W. E., Oakland, Alameda County.
Schumacher, F., San Jose, Santa Clara County.
Arroyo, Jorge, Guatamala, C. A.
Scott, W. K., San Francisco.
Litchfield, Oscar, Sebastopol, Sonoma County.
Derby, A. T., San Francisco.
Bennett, A. G. Jr., San Jose, Santa Clara County.
Huddy, G. H., Honolulu, H. I.
Halsey, W. H., Oakland, Alameda County.
Coke, P. S., San Jose, Santa Clara County.
Sharp, Jas. G., San Francisco.
Allen, R. H., Oakland, Alameda County.
Dennis, Cecil C., San Francisco.
Taylor, R. L., San Francisco.
Davis, Emille Wm., Sydney, N. S. Wales.
Seager, Harold L., San Francisco.
Van Orden, Geo. N., San Francisco.
Shuey, G. E., East Oakland, Alameda County.
Erhardt, P. C., San Francisco.
Richards, Henry G., San Francisco.
Edmunds, J. Marion, Napa, Napa County.
McKellops, H. L., San Francisco.
Hargrove, G. H. (out of State)
Ford, L. E., Los Angeles, Los Angeles County.
Reed, A. R., Pomona, Los Angeles County.
Lawton, W. J. P., San Francisco.
Moody, J. D., Los Angeles, Los Angeles County.
Meredith, Geo. H., Salinas, Monterey County.
Weston, Chas. S., Oakland, Alameda, County.

Granted on affidavit and proof of practice on March 12, 1885:

Bometter, Frank, Marysville, Yuba County.
Pearce, C. L., San Francisco.
Crow, Samuel H., Cedarville, Modoc, County.

MEETING OF JUNE 14TH, 1893.

Tudor, J. P., Los Angeles, Los Angeles County.
Griffith, Archer C., Paso Robles, San Luis Obispo County.
Dorrance, Frank C., University, Los Angeles County.
Sullivan, H. F., Oakland, Alameda County.
Ashworth, Frank P., San Francisco.
Levkowicz, M. W., San Francisco.
Avery, W. N., San Jose, Santa Clara County.
Boyd, Samuel A., San Francisco.

Meeting of August 1st, 2d, 3d and 4th, 1893.

Thirteen candidates presented themselves for examination.

The following were successful and were granted certificates:

Summers, R. A., Oakland, Alameda County.
Stevens, A. J., Los Angeles, Los Angeles County.
Brown, E. P., Los Angeles, Los Angeles County.
Buell, Harry C., Los Angeles, Los Angeles County.
Fletcher, Thos., San Francisco.
Weston, W. H., Los Angeles, Los Angeles County.
Robertson, Jno., San Francisco.
Reynolds, P. R., Santa Ana, Orange County.
Bryan, A. C., Pomona, Los Angeles County.
O'Connor, J. T., Murphy's, Calaveras County.

The following received licenses on endorsement of their diplomas:

Inglish, W. P., Vacaville, Solano County.
Burleson, F. D., Pomona, Los Angeles County.
Heider, Wm. T., Oakland, Alameda County.
Lemler, Ludwig, Los Angeles, Los Angeles, County.
Rees, Jno. S., Leesville, Colusa County.
Miller, G. A., Fresno, Fresno Co.
Grotefend, Geo., Redding, Shasta County.
Powell, A. A., South Haven, Michigan.
Hammell, Annie, nee Ramborger, Los Angeles, Los Angeles Co.
Grossman, M. E., Honolulu, H. I.
Parr, E. F., Delano, Kern County.
Hamilton, Cyrus, Newman, Stanislaus County.
Clayton, W. E., Ventura, Ventura County.
McQueen, Jno. S., Bishop, Inyo County.
Spinks, W. H., Los Angeles, Los Angeles County.
Hart, O. P., Needles, San Bernardino, County.
Smith, W. A., Los Angeles, Los Angeles County.
Short, E. N., San Francisco.
Little, G. B., San Francisco.
Mobley, W. G., Oakland, Alameda County.
Gambitz, M. R., San Francisco.
Williams, V. A., Cloverdale, Sonoma County.
Shankey, W. G., San Francisco.
McCarthy, J. P., San Francisco.
Sand, Jos. A., San Francisco.

The annual election of officers was held at this meeting and resulted as follows:

Thos. Morffew, D.D.S............*President.*
J. D. Hodgen, D.D.S..............*Secretary.*

Meeting of September 16th, 1893.

The following were granted license on the endorsement of their diplomas:

Davy, Jno. W., San Jose, Santa Clara County.
Westphal, O. F., San Francisco.
Kennedy, W. F., Los Angeles, Los Angeles County.

Time set for next annual meeting for the examination of candidates for certificates to practice, the *first Tuesday in August, 1894*, beginning at 9 A. M., Tuesday August 7th, and continuing four days.

Meeting of November 17th, 1893.

The following received licenses to practice on the endorsement of their diplomas:

Alger, Edward J., Santa Cruz, Santa Cruz County.
Meek, Chas. A.,
Sheppard, H. M., San Francisco.
Wallace, A. H., San Francisco.
Pratt, E. W., San Francisco.
Humphrey, Jno. G., Alameda, Alameda County.
Simmons, B. F., San Francisco.
Redmond, Jno. M., Arcata, Humboldt County.
Pfister, Joseph, Suisun, Solano County.
Engs, Jno. S., Oakland, Alameda County.

The following received licenses to practice on affidavit and proof of having been engaged in the practice of dentistry on March 12, 1885:

Blair, C. L., Los Angeles, Los Angeles County.
Hubbard, Geo. A., San Francisco.
Briggs, W. H., Brentwood, Contra Costa County.

Meeting of January 23d, 1894.

The following were granted licenses on the endorsement of their diplomas:

Ketcham, Edw. T., Santa Maria, Santa Barbara County.
Corbiére, C. C.,
Swain, Robert,
Requa, Herbert D., Pasadena, Los Angeles County.
Garrison, D. R.,

Dr. W. J. Younger presented his commission of appointment, vice Dr. W. F. Griswold, deceased, dated the ninth day of January, 1894.

Meeting of February 5th, 1894.

Granted a license to practice on the endorsement of diploma:

Beacom, Charles W., Crescent City, Del Norte County.

J. D. Hodgens, D.D.S.,
Secretary California State Board.

SOUTHERN CALIFORNIA ODONTOLOGICAL SOCIETY.

THE regular meeting of the Southern California Odontological Society was held in Los Angeles, Tuesday evening, February 6, 1894, President M. A. Menges in the chair.

Dr. J. F. Price read a paper entitled "Disease of the Dental Pulp." The meeting being well attended, a hearty discussion followed. Though, as some one remarked, bashfulness is so prevalent in the society, discussions are hardly as full as they should be.

The Legislative Committee reported in substance as follows: "Three illegal practitioners have been convicted for violations of the Dental Act of March 12, 1885. Two of these cases have been carried to the Superior Court, and the decision of the lower court was affirmed in each instance, notwithstanding one of the defendants was practicing as an assistant to a licensed practitioner.

Judge Smith on January 31st rendered an opinion in the appeal case of *The People* vs. *Douglas Creighton and John W. McClure*, for practicing without a certificate from the Board of Dental Examiners, making it a misdemeanor to so practice, denying defendants a new trial and affirming the judgment of the lower court, saying:

> "The grounds of appeal are based upon the refusal of the Court below to grant the defendants a jury trial. It is urged on behalf of the defendants that Sections 1041 and 1042, Penal Code, provide that all issues of fact must be tried by a jury, and therefore defendants were so entitled. This would be clearly the case if one statute did not make an exception of cases tried in the city courts of our city. What is commonly known as the 'Whitney Act,' passed March 18, 1885, and reenacted in 1891, in statutes 1891, page 291, provide among other things 'and in such cases enumerated in this section in which trial by jury is not secured by the Constitution of the State he may proceed to judgment in the first instance without a jury.'
>
> "The Constitution provides: 'The right of trial by jury shall be secured to all and remain inviolate.' Article I, Section 7.
>
> "Our Supreme Court has repeatedly passed upon and defined the meaning of that section in our Constitution, and it is the right of trial by jury as it existed at common law. Now all issues of fact in criminal cases were not triable by jury at common law. The offense for which these defendants were tried was unknown to the common law, and hence they are not entitled to jury trial by our Constitution; and not being entitled to a jury trial by our Constitution, the Legislature of the

State has the undoubted right to provide for their trial without the intervention of a jury, and having so provided they cannot complain."

"In case of *ex parte Halstead*, 89 Cal. 471, the Supreme Court say: 'It follows, therefore, that the City of Los Angeles, so far as its Police Courts are concerned, is now governed by the provisions of the Whitney act.'

"In the provisions of the Whitney act is found the following language: 'But on appeal the defendant shall be entitled to a trial by a jury, and counsel insists this means a trial *de novo* on appeal, but we think this position is not tenable. It only has reference to the mode of trial in case a new trial is awarded. It does not conflict with Title 11, Chap. 2, P. C., providing for appeals to Supreme Courts. There is no other mode of appealing a case from a justice-of-the-peace or police court, except by that chapter above named, and by that chapter there can be no trial *de novo* until the court has awarded a new trial. If the contention of counsel on that point is correct, then there is no mode of appeal pointed out by the statute and no appeal could be taken.

"For the reasons here given a new trial is denied and the judgment of the court below affirmed."

The right to a jury trial having been denied by the Superior Court has cast a gloom over all the unregistered dentists and physicians in the immediate vicinity of Los Angeles. The medicos have taken up the cudgel and have begun war on one of the most notorious, with every prospect of conviction.

On motion, the old committee was retained with the addition of two new members.

The following resolutions were adopted:

WHEREAS, The termination of the labors of our Legislative Committee offers a suitable time for our society to express its appreciation of the work done by said committee; therefore, be it

Resolved, That the Southern California Odontological Society extends its congratulations to the members of said committee, Drs. E. L. Townsend and John C. McCoy, and expresses its entire satisfaction at the results of their labor in the enforcement of the Dental Act of the State of California. And be it

Resolved, That this society values the result obtained by this committee no less than the greatest advance made in California in the cause of dental education since the passage of the Dental Act. And be it further

Resolved, That it is the sense of this society that to this committee belongs the credit of carrying out the provisions of said act; and we desire to express to them our sincere thankfulness; therefore, be it further

Resolved, That these resolutions be incorporated in and made a part of the minutes of this meeting, and the Secretary be instructed to prepare and deliver a copy of the same to the members of the committee.

Adjourned.

OHIO STATE DENTAL SOCIETY.

AT the last annual meeting of the Ohio State Dental Society held in December, 1893, the following officers were elected for the year 1894:

President	Charles Welch	Wilmington
First Vice-President	W. H. Todd	Columbus
Second Vice-President	Henry Barnes	Cleveland
Secretary	L. P. Bethel	Kent
Assistant Secretary	L. E. Custer	Dayton
Treasurer	C. I. Keely	Hamilton

L. P. Bethel, Secretary,
Kent, Ohio.

The Horseshoe on the Door.

I wonder where the patients are—
Why everything's so dull?
'Twas just a month ago
I had my office full.

But now the bell I never hear,
And money's running low—
I tell you something must be done,
And that right soon, you know.

"I'll tell you what," the good wife said,
"You laugh at old folklore,
But patients stopped that day you took
The horseshoe from the door.

"And I am going to put it back;
You'll see how quick they'll pour
Into your office when you put
That horseshoe on the door."

She put it back and then remarked
"I told you so before,
And greater men than you believe
In horseshoes on the door."

Alas, for all the luck it brought!
Or patients did restore,
Next day upon my bald pate fell
That horseshoe from the door.

And while I groaned, and bitterly
At superstition swore,
She blandly said, "It brought a case—
That horseshoe on the door."

—*N. Y. Med. Journal.*

EDITORIAL.

RESIGNS THE EDITORIAL CHAIR.

WITH the December number of the *Dental Review*, Dr. A. W. Harlan ceased to wield the pen for that very estimable contemporary. The force, fearlessness, and genius of Dr. Harlan will be sincerely missed by the readers of the *Review*, and all are selfishly regretting his action. We understand that he has sailed for Europe, and the PACIFIC COAST DENTIST joins others in wishing him godspeed and a delightful rest, for no one is more deserving after such faithfulness as Secretary-General of the Columbian Dental Congress. We are hoping, however, that he will not forget his promise to be in San Francisco during the Midwinter Fair Congress.

For Dr. C. N. Johnson, who has been known to us all as an able associate with Dr. Harlan, we can only say we expect a great deal. The fight has been fought.

THE *Southern Dental Journal and Luminary* of January contains the following editorial:

"The Hygea, at Old Point Comfort, Virginia, will be the place of the grand gathering of the clans this year. With the American and Southern Dental Associations, and the Virginia State Society in joint session, we ought to have a meeting second only to the great Columbian Dental Congress. Old Point Comfort is one of the finest watering places on the Pacific Coast."

The *Luminary* has a very good idea of geography; it isn't that. The *Journal* is filled, and justly, with an intense desire to see this meeting in Virginia a success; and so are we for that matter. It is now four months since the PACIFIC COAST DENTIST first mentioned the project of the Midwinter Fair Dental Congress, and, notwithstanding the meeting has shown every prospect of being a grandly successful reality, and much has been done to publish its aims, etc., no Eastern journal has been permitted to more than mention the fact.

Has the *Southern Journal* "shown its hand?"

THE *Dental Record* contains an account of a late meeting of the General Medical Council of England, at which a number of American graduates of the Havard and Michigan schools of dentistry applied for registration, urged on the ground of having commenced their course of study prior to May 29, 1893, when the Council decided to discontinue the recognition of American diplomas. Their applications were denied. At the same meeting the following motion was made by Mr. Brudenell Carter.

> "The attention of the Council having been called to the practice of advertising as pursued by certain dentists, it is hereby declared that, while the Council will not at present interfere with this practice so long as it is confined to a mere notification of the place of abode and the profession of the advertiser, yet that the publication of a scale of charges, or the issue of advertisements containing claims of superiority over other practitioners, or unfair depreciations of them, will be regarded as an offence with which the Council will be prepared to deal, and which may easily be carried so far as to constitute infamous or disgraceful conduct in a professional respect."

THE Transactions of the California State Dental Association has been issued, and in exceptionally good taste also.

THE *Pacific Medical Journal* has added the name of S. S. Herrick, M.D., to its editorial staff as associate editor.

DR. BARRETT, of the *Dental Practitioner*, is writing the epitaph of the *Western Dental Journal*. How about that, friend Patterson.

THE *Pacific Medical Record* has, on account of confusion arising from the name "Medical Record," wisely decided to change to the *Medical Sentinel*.

THE *Dental Register* has for years published a very nice "Directory of Dental Societies." It also has not changed the names of the officers of the San Francisco society, we think, for the same length of time. Dr. J. J. Birge has been dead for two years, and Dr. Morffew says his name is not "Chollie," but Tom. Please correct.

The Supreme Court of Missouri has declared dentists unexempt from jury duty. It will look odd to see days and days marked off the operator's calendar—"on jury." They do funny things in Missouri, though.

Prof. Truman W. Brophy, of Chicago, originator of the "Brophy operation," for the radical cure of cleft palates, has been appointed oral surgeon to the Presbyterian Hospital, one of the largest institutions of the kind in the West.

Dr. C. L. Goddard has removed his office from 131 Post street to 406 Sutter street. Gradually Sutter is becoming the center of dentistry.

Dr. Daniel B. Freeman of Chicago is visiting the Coast.

Dr. J. N. Crouse of Chicago, President of the Dental Protective Association, is in the city, accompanied by his attorney, on business of the Association.

Correction.—In the January number please read as a member of the Reception Committee Dr. C. V. Baldwin, Los Angeles, instead of F. M. Baldwin. Secretary of the General Committee will please correct the error in his minutes.

KALEIDOSCOPIC.

FOR THE TEETH.

Some Excellent Rules to Follow in the Care of Them.

A dentist in New York gives these rules for the care of the teeth: "Use a soft brush and water of the temperature of the mouth. Brush up and down in the morning, before going to bed, and after eating, whether it is three or six times a day. Use a good tooth powder twice a week—not oftener—except in case of sickness, when the acids from a disordered stomach are apt to have an unwholsome effect upon the dentine. Avoid all tooth pastes and dentifrices that foam in the mouth, the lather is a sure sign of soap, and soap injures the gums, without in anywise cleansing the teeth.

"The best powder is of precipitated chalk; it is absolutely harmless, and will clean the enamel without affecting the gum. Orris root or a little wintergreen added gives a pleasant flavor, but in no way improves the chalk. At least a quart of tepid water should be used in rinsing the mouth. A teaspoonful of listerine in half a wineglass of water, used as a wash and gargle after meals is excellent; it is good for sore or loose gums; it sweetens the mouth and is a valuable antiseptic, destroying promptly all odors emanating from diseased gums and teeth. Coarse, hard brushes and soapy dentifrices cause the gums to recede, leaving the dentine exposed. Use a quill-pick if necessary after eating, but a piece of waxed floss is better."

These rules are worth heeding. Be sure of the genuine listerine by purchasing an original bottle.

A Curious Accident recently occurred in the theatre at Havre, France. After the performance of the first act of the tragedy, "The Pirates of Savannah," the attendants appeared and begged the audience to remain seated. The cause of this curious request was soon made apparent. A lady sitting in the front row of the second balcony and leaning over the rail, had sobbed so violently that she had ejected her dentures, which had fallen into the passage below. After much searching the dentures were recovered, and she is said to have remained to the end of the performance, and to have sobbed on, but with more circumspection.—*The Dental Record* (*Eng.*)

The *Allegmeine Medizinische Zentral Zeitung* gives the following prescription of H. Paschkis for covering the odor of iodoform:

℞

Iodoformi	*aa* 4.0
Caolini	
Acid. Carb. Cryst	0.5
Ol. menth. pip	*m* 10.

The peppermint is used as a perfume, the smell of the iodoform disappearing as it is rubbed up with the crystals of carbolic acid.

THE

Pacific Coast Dentist

VOL. II. MARCH, 1894. No. 3.

ORIGINAL COMMUNICATIONS.

TECHNICS OF OPERATIVE DENTISTRY.

BY H. P. CARLTON, D.D.S., SAN FRANCISCO.

[Read before the San Francisco Dental Association.]

IN these days when a discovery has been made, be it scientific or otherwise, these leading questions are asked: "What is it worth?" "How far will it minister to the well-being and advancement of the human family?" "What will it do toward adapting man to his environment more perfectly?"

We all know that a scientific discovery standing *alone* is barren of good results. Take, for example, the law of gravity: what use is it to simply know that it is the law of the universe, unless that law is applied in the numberless ways that it has been applied for the advantage of civilization? Or the discoveries of the electricians, if no application had been made and the mysterious agency harnessed to the motor and railway car and made the servant of man?

In the application of scientific principles to the needs of man technical knowledge and technical skill find their field of operation. But just here let us guard against the prevalent misconception of the true relation of *technics* to scientific *research;* there *must* be just subordination of the technical skill and knowledge; in other words, it is the servant of the

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NOTE.—The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in this country.

scientific truth, making fruitful that which would otherwise be barren of any good. But there is many a student who is satisfied with the acquisition of mere technical skill, and his error lies in this: that there is *no outgrowth* without scientific truth.

By the term "technics" we mean the *details* pertaining to the practice of any of the arts or sciences, with special reference to the means and appliances. In properly preparing one's self in any of the arts—let us say music, for instance,—an endless amount of work is devoted to the *technic;* the same in the work with the brush and chisel. Goethe said: "Fortunate is he who at an early age knows what art is." He felt that a true knowledge of the technic of a subject so difficult and complicated as art is, if reached at all, is unhappily only too likely to be acquired at a time of life when it comes too late to be carried effectively into practice; and, therefore, he said, fortunate is the man to whom the *details* of the subject comes early, when it may light up for him the obscurity in which he works. But enough of the *relation* of the technic to the art or science at present; it will suffice to introduce my subject proper to you.

You will not expect me in the limits of this paper to more than briefly touch on the subject of the technics of operative dentistry; still it is possible, even in a space so limited as this, to lead your minds in such a direction that you may at least appreciate the full importance of the work and become heartily interested in it. I have read somewhere this truth: "Man has been evolved from a mass of ignorance to an admirable genius by building one improvement upon another."

The addition to the curriculum of our leading dental colleges of a department of "operative technics" is an evolution, and is the result of years of observation and long study of the well-known Prof. G. V. Black, now of Jacksonville, Ill., but in 1888 the superintendent of the Chicago College of Dental Surgery. While there he noticed that many of the young men who commenced the study of dentistry, coming from the common or high schools, the farm or the store, entered without the least knowledge of the anatomy or structure of the teeth, or any experience whatever in handling the instruments for operating upon them.

In those days of college courses these young men were at once turned into the infirmary to try their skill(?) in filling teeth or any of the various branches of our work. One case of this kind I shall never forget. While a first-year student myself—and I smile as I recollect what an immense amount of sport the mighty seniors had with the poor unfortunate—a new student was assigned a patient and told to "clean his teeth." He had never been in an office in his life as a student, and his knowledge of dental instruments and their uses was confined to the brightly nickled student outfit in the mahogany case he had just purchased. The patient, as I remember, was a sailor or longshoreman, and the "moss" was thick and green. But how to start in puzzled our novice. An obliging senior gave him an engine, picked out one of his newly mounted corundum wheels, brought a cup of water and said: "Grind it off," and he ground. The class (seniors, of course,) took turns in marching around the chair to enjoy the victim's writhings and muttered curses, as our embryo doctor eliminated tobacco stains and enamel, until by the timely arrival of the demonstrator he was set right and the patient saved.

These young men are not to be blamed for what happened to the patients turned over to them, but it seems to me that both student and patient were to be pitied, and that somebody was to blame for this state of affairs. Dr. Black reasoned this way. Our colleges practically take the pupils away from the preparation (however slight) they formerly received in private offices, and were not giving an equivalent; nor did he think justice was being done the confiding patients who came daily under his care. To remedy this evil he went to work on the problem—

First—To give the young man a course of instruction that would fully take the place of the office pupilage in the training of the hand and familiarity of the teeth; and,

Second—To enable the pupil to do reasonable justice to the infirmary patient.

OPERATIVE TECHNICS was the result. Dr. D. M. Cattell of Chicago was selected as the first teacher of the technic, and put to work with a mere skeleton of a course to develop it as best he could, following those lines that seemed best to fit the freshman student to enter the infirmary. Also to give him a solid foundation upon which to build and maintain a professional career. He has been faithfully and continuously at work in this line ever since, and has developed a course of which he may well be proud, and which we who have been more recently started in the good work were more than glad to avail ourselves of.

I have heard it questioned, and for that reason wrote this paper, whether or no it was not better to turn the student into the infirmary at once, and, with the occasional help of a demonstrator and his fellow-students, allow him full scope, and it was said if he had any genius and ability it would come out and he would get along. Possibly so; but I do not agree. For every bright and shining light there are dozens of lesser lights who would never rise out of a certain mediocrity; so let us give them a system to start on, and the genius and individuality will always come to the front. As now taught by the leading colleges of dentistry in the United States—our own among the number—the course is briefly outlined somewhat as follows, the design being to give the freshman student—

1. A thorough knowledge of the structure—physical and anatomical—of various tissues upon which he expects to work later on; a study of the typical forms of teeth, illustrated by drawings and charts, taken from Professor Black's "Dental Anatomy," our text-book. The student is also assisted in his recitations by having before him specimens of human teeth, samples of which he is required to provide himself. During the course of these recitations special attention is given the nomenclature or technical terms.

2. A study of pulp-chambers and root-canals: their comparison with outward forms of teeth, gained by section-cutting as follows: Each student is required to provide himself with at least eight teeth, commencing at the median line and going back to the third molar on either side, upper or lower jaw, and more if possible; the teeth to be perfect enough to make a good section. These teeth are now either carefully sawed in two and ground smooth against a wheel, or ground from one side until the pulp-chamber and root-canal or canals are exposed the entire length of the tooth, and the grinding continued until the center of the tooth is reached. The sections thus prepared are now mounted with sealing wax on small blocks

(fitted into a box) provided each student. To more firmly impress the forms upon their minds, "silhouette pictures" or prints are made, using the block as a handle, and pressing the prepared section against an ink pad, and printing it on blank slips of paper ruled for the purpose. For specimen work each student prepares another set of sections and mounts them (as you see these are mounted) on a uniform block, the teeth raised on pins, and the pulp-chamber and canals colored with red oxide of zinc, graving the line of demarcation between the enamel and dentine. These specimens are from the freshman class of this year.

To still further emphasize the importance of being thoroughly familiar with tooth forms, they are asked to try their hand at carving out models from blocks of plaster of Paris. These samples are some of the results, and prove that some of the boys have talent in that direction, beside having learned their lesson well, as this work is entirely free-hand—not moulded.

The next step—a brass model like this—is given each member of the class, and he goes on another hunt for patients; this time teeth more or less decayed, and sets them up as nearly as possible in their proper relation, as found in the normal·arch; eight is all that is required, as before stated. On these "dummy patients" all our further work is done. The processes of pulp-capping, devitalization and its subsequent treatment, having previously been instructed in the simple details in a short talk on the subject. Following this, supposed cases of pulp troubles; in fact, a treatment of pulps in all their pathological conditions; a study of some of the varied remedies—at least the commonest ones; a study of alveolar abscess (pericementitis)—all, however, being mere outlines and simple, care being taken not to encroach on the teachings of the chairs on those subjects. Cleansing and filling properly root-canals with the different modes of procedure, and lastly the preparation of the cavity for the reception of all the various materials used for fillings, the simpler forms only being considered, and hand-work only encouraged. The cavity under discussion is prepared on a plaster model for the class, and then all set to work on their individual "dummy." An essential feature of the whole course should be (and we try to make it so) that nothing be taught that is not in perfect accord with the teachings of the professor of operative dentistry, and the other chairs as well; therefore it seems to me that the instructor in technics should be associated with and directed by that professor.

Does it not seem to you that such a course properly systematized and divided into set lessons and recitations would most materially benefit the beginner manually and mentally, and send him into the infirmary at the beginning of his junior (or second) year, ready and at least somewhat able to cope with the tasks set before him.

If my paper has so convinced you, the object in writing it has been accomplished, and I thank you for your attention.

REFINING GOLD.

BY JOSEPH D. HODGEN, D.D.S., SAN FRANCISCO,
Assistant to the Chair of Dental Metallurgy, College of Dentistry,
University of California.

[Continued from page 58.]

PARTING GOLD, or a wet method for refining gold by inquartation, or "quartation," as it is more commonly known. This is by far the most advantageous process of obtaining fine gold, and is therefore the chief means employed. This is performed by digesting the thinly rolled or granulated alloy in either nitric or sulphuric acid.

The refiner, in his choice of metal for this operation, may endeavor to obtain gold containing as much silver as possible, and, as this will require an additional quantity of the latter metal fused with it in order to carry out the operation, it is of course an object, if possible, to employ silver which contains small quantities of gold, and thus, as it may be said, to carry on a double refining process at once.

As the actual separation of the two is effected by digesting the mixture in hot acid, which, while it is a ready solvent for other metals, is inactive upon gold, it may be asked, Why not at once treat the alloy with acid without such alloying? Such would be quite useless, for, the foreign metals being in so small a relative proportion, the acid would only remove the alloy at or near the surface, the metal being sufficiently close in texture to mask all the rest from the action of the acid.

The sulphuric acid process is doubly recommended, especially when large quantities of the alloy are to be digested, as it is less expensive, and the gold is obtained of a greater degree of fineness. The oxidizing action of the nitric acid is of especial value when tin or antimony is present in the batch of metal.

Preparation of the Alloy.—The impure gold is first weighed and the approximate weight of the silver, if it contains any, subtracted; silver is then added in the proportion of three to one, less the amount already contained in the alloy. This makes an alloy of three parts silver and one part gold (impure). Hence the term "quartation," used to be applied to this mixing. These proportions are then fused together in a clean and boraxed crucible, well mixed, and either poured into warmed and oiled ingot-moulds, or dropped while molten from the crucible into a wooden tub or tank of cold water for the purpose of granulation.

The latter is unquestionably the best method of preparing it for the digesting process, for, if poured into the ingot-moulds, the alloy will require rolling to a very thin ribbon (No. 35, U. S. gauge), after which it must be cut in small pieces by the shears. This many times is impossible, as much of the gold that it is desired to refine is exceedingly brittle. Then, too, the labor of rolling is an item in time and energy. The alloy, being thus prepared, is ready for the digesting process.

Nitric Acid Process.—For this purpose a Florence flask should be used, as its shape is best adapted to decanting. Place the prepared alloy in the flask and pour on nitric acid to the amount of about one and one-half times the weight of the alloy. It is well to state here that the nitric acid used *must be free from chlorine,* and about 1.2 specific gravity. The acid must always be tested for chlorine by adding a drop of the solution of silver nitrate ($Ag\ N\ O^3$) to it, which, if chlorine be present, will instantly be rendered milky from the precipitated chloride of silver. Heat the flask gently in a sand-bath over a Bunsen or alcohol flame. Effervescence will take place, red fumes of the oxides of nitrogen and ammonia will be given off, showing vigorous action on the alloy, and the silver and other foreign metals will dissolve, leaving the gold in much the same shape it was introduced as an alloy, of a deep blackish-brown color. When effervescence has entirely ceased carefully decant the solution of the nitrates of silver, etc., and preserve it, add a fresh portion of nitric acid and boil and decant as before. This is usually repeated but once, that being sufficient; but, if at the end of the second digesting the red fumes are still seen to rise from the mouth of the flask, and effervescence is continued, decant and add more acid until all fumes cease to rise, which marks the termination of the digesting process. The acid is now replaced by distilled water two or three times, for the purpose of washing the gold left therein, the whole being agitated thoroughly. At length carefully invert the flask over an evaporating dish and dry the gold left on it in a sand-bath. The mass of gold will now contract and acquire the characteristic golden color. *Weigh it.* Place in a previously boraxed crucible, melt with a small amount of potassium nitrate, and pour into warmed and oiled ingot-moulds.

Gold thus refined may reach 998 thousandths fineness, and is ready for desirable alloying.

Recovering the Silver.—The "blue liquor" which remains after the action of the nitric acid on the alloy, and which has been preserved, is so called from the copper it contains and colors it. This, having been set aside for the reduction of the silver it contains, may now be placed into a large beaker and the silver thrown down by means of a saturated solution of sodium chloride (common salt) as white chloride of silver, which becomes of a dark gray color on exposure to solar light. Care must be exercised at this point not to add an excess of the "salt" solution, or some of the silver chloride may be dissolved, resulting in a loss.

The silver, having all been precipitated as a chloride, is then washed thoroughly and repeatedly to rid it of the nitrate of copper contained in the solution. Its approximate freeness of this may at first be determined by the color of the wash-water; finally, however, the shade becomes so faint it is almost impossible to detect it, and a more delicate test must be employed. To this end a few drops of ammonium hydrate is added to the suspected filtrate in a test-tube, when, if the slightest amount of copper nitrate remains, the solution will assume a deep blue color. In consequence the precipitated chloride of silver is washed and rewashed until not the faintest hue is visible in the filtrate, even on the addition of ammonia water, which indicates the chloride of silver is perfectly free from contamination.

It is now, if on the filter-paper, returned to the beaker, and an inch or so of water poured in to cover it. To this is added sufficient hydrochloric or sulphuric acid to make a ten-per-cent solution, and several bars of zinc or iron immersed with it. The zinc or iron in the presence of the acidulated water, having a greater affinity for the chlorine than the silver, the old chloride is readily broken up and a new one formed with either of the former metals, leaving the silver in a free state.

This is now washed and rewashed thoroughly to rid it of any soluble chloride of zinc or iron it may contain. It is then dried and melted in a boraxed crucible with about five per cent of its weight of potassium nitrate. The silver thus obtained frequently "spits," and is very brittle, but becomes malleable by simply remelting.

Silver may be recovered and reused for this process by various means, this being only one of many, others of which are very popular, but which in detail would be out of place in a paper on gold.

Sulphuric Acid Process.—The use of sulphuric acid for the operation is preferred in many refineries and the mints. For, as was hinted, it is more economical; for not only is the acid itself much cheaper, but the resulting gold is more thoroughly freed from silver; indeed, it is said that gold having previously been refined by the means of nitric acid may subsequently have more silver separated from it by the sulphuric acid process. In operating the metals are so mixed as that the gold amounts, at most, to not quite half the weight of the silver. Pettenkofer, who has well studied this operation, says that 1.75 parts of silver is the smallest working proportion of the latter metal; but, in order that the mixture may be most fully acted upon, it should not contain much more than twenty per cent of gold; and if it contain copper (which in small proportions facilitates the operation) this should be under ten per cent, for, if too much copper be present, a large quantity of sulphate of copper will be formed, which latter is insoluble in the strong acid liquors.

But, although the above proportions are given as the working quantities in large refining operations, the process may be carried on upon silver containing very small quantities of gold. Thus, in France, it was found very profitable to separate the gold from old five-franc pieces, which contained only one- to two-thousandths of gold; and the French state that silver containing only one-half a thousandth may be very profitably refined.

The alloy having been granulated, as before mentioned, is introduced into a digester (Florence flask) with about two and one-half times its weight of concentrated sulphuric acid. This is allowed to boil now, during which strong action is evidenced by copious disengagement of sulphurous acid, while the silver and copper are simultaneously converted into sulphates. This first boiling is continued as long as sulphurous acid is evolved, which will commonly go on about four hours. The liquor is then removed and a smaller quantity of acid put on, the boiling being further carried on for a short time, after which the digester is allowed to remain at rest, in order that the gold may subside. Sometimes it may be requisite to use even a third acid. Repeated washing of the gold with boiling water is now necessary, for sulphate of silver is a very insoluble salt, and sulphate of copper when contained in so acid a menstruum, is also somewhat so. Hence, without such washing, the gold would be liable to be contaminated with the very alloys separated by the process; and, again, the dilution effected in the silver solution, and, consequently, in the copper during the reduction of the silver, is advantageous, as this reduction progresses very slowly if the sulphate of copper formed be very concentrated; indeed, where such is the case, there is a tendency to reoxidation of the newly precipitated silver.

The object in using a glass digester in this part of the process is two fold: first, it is desirable to see the contents in its various stages of completion, and, second, if the alloy is not free from tin or lead, and it is undesirable to be compelled to so free them, the potassium digester, as is otherwise used, is in danger of ruin from contamination with these melted base metals.

Such are the principles of the methods of refining in different refineries. As to the results, it may be accurately stated that operating in both cases upon large quantities, the nitric acid process will afford gold of 993 up to (at times) 998 parts in the thousand, while sulphuric acid will refine up to 993, and raising from that to 998, and very frequently to 999 thousandths.

It will be seen thus that these processes do not yield *perfectly* fine gold, and it can only be obtained in perfect purity by dissolving the gold itself thus obtained, separating other metals and precipitating the pure gold again in the state of a metal.

The apparatus and re-agents needed for the parting process are as follows:

Nitric acid, or
Sulphuric acid.
Ammonium hydrate.
Sodium chloride, etc.
Bars of zinc or iron.
Three Florence flasks.
Two large beakers.
Filter and filter paper.
Evaporating disk.
Sand-bath and rack.
Bunsen burner, or alcohol lamp.
Stirring rod.

DENTAL ETHICS.

BY DR. NEY CHURCHMAN, PORTLAND, OREGON.

[Read before the Portland Dental Society |

ETHICS is the science of culture; moral philosophy. Dental Ethics, the science of professional culture—dental moral philosophy, and includes that just and honorable consideration that is due from the practitioner to the patient; from the college to the student; from the student to the college, and from one dental society to another.

Dental ethics taken in its widest sense, comprises or should comprise the education of the patient as well as the operator, so that the science of manners may receive its fullest exemplification in both operator and patient; the fundamental principle of dental ethics is honesty; honesty of purpose, honesty of opinion, when giving patients your advice. Not of that guarded sort that puts immediate money into the purse of the new and needy practitioner, in the ranks of a profession already overcrowded, but of that unadulterated and unstrained quality that will earn a liberal and lasting reputation, which parallels the time-honored truth, "An honest man is the noblest work of God;" so an honest practitioner is the noblest work of the dental profession. Of course we all know that the dentist should be a gentleman in manner and speech, of cleanly habits, of studious nature, speaking no evil of an honest fellow-practitioner or his work—a habit many are tempted to fall into, and one which gains you less friends among your patients in the long run, for many of them are discerning—more than you think—and form a poor opinion of an operator who is always condemning a brother practitioner or his operations, or finding fault with his manner of dress. Now as there are two sides to all questions for debate or consideration, so there must be in the heading of this subject; and, as we require all these accomplishments or virtues of the professional dentist for the good and glory of the profession, we should naturally in the equity of the proposition expect some consideration from the patient, so far as his or her education in the science of dentistry or dental operators will allow; and, where deficient, a part of our time should be given to the imparting of the knowledge that will make contact and and services agreeable and appreciated.

In establishing the premises for an argument upon this important topic, we must first admit that above the remuneration comes that protection to ourselves as a body; that we must work for and give more attention to in the future. All labor or trade organizations enforce a membership to their unions and associations and compel the members to live up to a strict code of ethics, and upon refusal comes expulsion and contempt, or penalty of some sort or other. Now we require a practitioner, upon becoming a member of our dental societies, to refrain from exhibiting showcase work, any form of advertising, or practising any other kind of dental-parlor humbuggery, and what is his reward? a mere membership in our strictly ethical society. The consequence is he sits in his office for two or three years and starves to death, counting the bricks in the opposite building, waiting for a bite or to be bitten, while the limited liability gentleman in three months or so counts twenty-dollar pieces instead of bricks, cultivates and humbugs the ignorant and drives a four-in-hand. Now to the serious part of this argument: for the new and younger practitioners who are ethically loyal to the society they belong to they should have some *quid pro quo* or protection as their reward. Now as a body each of whose members come in contact with from one to three thousand patients a year, and these in a gentle way may be made to know the quality of advertisers generally and the concomitant humbugs they indulge in. "Vitalized air," "wind plates without teeth," "gum applications for painless extraction," etc.; in fact, a short lecture between rests will do the patients no harm if they are in the mood to listen. While accidents may happen to any regular practitioner, it is not necessary for you to condemn, or, should the patient fall into your hands, at the first opportunity give them a lecture upon the faults of the work done and the waste of time and money—even if from the hands of an advertising quack.

Now let us see what ethics is due the profession from the colleges. A number of colleges have formed an association for self-protection of the kind I have been preaching to you, and to raise the standard of operators by requiring three-years' pupilage, instead of two. Now let us see if they are not ethically liable to the profession. It would seem as though they should look at the beginning instead of the end of the allotted three years, and see what the mechanical and operative ability of the student is likely to be before receiving him into their fold as a student. For although dentistry may be called a trade, or an educated profession, it is indeed a mechanical profession, and, while it requires three years to make operators of some students it would require a natural lifetime with others. A man may make a brilliant lawyer or physician without being able to saw a board off straight, but never a fine operator.

Now ethical consideration for the welfare of the profession by the colleges, instead of making them dividend-paying mills, grinding out three or four thousand yearly additions to an overcrowded profession, we would suggest that they begin at the other end and sift out incompetents by determining before receiving them as students whether they have any mechanical or operative ability. That is ethics to suffering humanity; the science of manners; professional and moral philosophy to the civilized world that requires the services of an honest, conscientious and capable operator. Now, while we ask these several conforming propositions for the benefit of the student and the profession generally, let us see what his ethical duty is as a student and beginner in the profession. It can be told in a few words by me, after I have recommended him to read and digest that able lecture to students found in *Items of Interest*, Februory 9, volume III, and delivered by one of the ablest men in the profession, and for years Dean of the Pennsylvania Dental College, Dr. Charles Newlin Peirce, which leaves little to be said, except that he should thoroughly master his profession. So that, in course of practice and time, his patients come recommended by others he has labored for and educated to that degree that the professional man's burden is lightened, and not from a class of ignorant tramps, made so by unprincipled "fakirs," who are eternally looking for dental parlors, flaming advertisements, ready-made teeth, wonderful preparations or methods known only to "the —— Dental Co," etc.

Now a word to the new beginner, that we are to stand by and give some benefit in return for our asking him to join and become a true member of our society: there is a little ethical conduct due the profession in the practice of which he is to make a living. While the glorious and emulating ambition of youth is commendable, it does not lie in taking in a student the moment your office is open: wait till you are able by experience to select men that will be leaders; there are enough drags now; you only endanger your own success, add nothing to your professional dignity and overcrowd your own ranks. Keep your membership in a local dental society; take an interest in its proceedings. It is well to accustom yourself to speaking by rising occasionally and giving the profession the benefit of whatever new ideas, or theories, you have for the general good. While you are striving to live up to the code of ethics prescribed by your society, your duty is to allow no violation by any of its members, a persistence in which weakens the society, drives out the very members above all others that are desirable and worth retaining, and fills it up with a species of gleaners "who much receive, yet nothing give."

And now let us all as practitioners cultivate honesty: honesty of purpose, honesty toward each other, unswerving integrity and sound moral and ethical principles, so that of contributive knowledge for the general good our effort has been to give to the common fund more than we have received.

So live that when your name is mentioned in office or in the mart that it may be a pleasure to all unselfish brothers to say, upon hearing it, "he is an honest man, and one of our best."

So live that the bright-jeweled finger of Time, pointing down the corridor of centuries, shall emblazon your name upon the glittering archway over the broad road to which fame and honor has led you. Your epitaph shall be: "An honest man, a benefactor of mankind; and the bright world is glad of his having lived."

FILLING ROOT-CANALS.

BY E. E. CAWOOD, D.D.S., PORTLAND, OR.

[Read before the Portland Dental Society.]

AS any paper upon this subject would be of little value without description, to some extent, of the methods of preparation of the canal for filling, a discussion of that division of the subject will quite naturally come first.

Believing that the most interesting feature of a dental society is the discussion which may follow the reading of a paper, and especially any production which I may present, I shall endeavor to induce as much discussion as possible by departing from the well-beaten paths pointed out by my seniors, and give my own ideas and methods: some things original with me, and others as I have selected from among the many different views given us by professors, text-books and journals.

In the first place, in order to understand the principles of root-filling, we are to know which may be utilized and which roots should be at once removed. Each root must indicate to the intelligent operator its own condition and the treatment to follow.

Since it is impossible for one to write an ideal paper, bringing out all the points which may occur to him, I will be satisfied to cite to you a few cases only, diseased and otherwise, that are, I believe, met with most frequently, their course of treatment until ready for filling. and then the process of filling proper.

To begin with we will take a case that would naturally come first, and is, with one exception, the most simple—that of devitalizing and removing a pulp. For this I will only mention two methods, since, I believe, all others known at the present time are obsolete. These methods are by the application of arsenic and by the injection of a local anesthetic into the pulp, the latter affording an immediate removal. This method is only applicable to the anterior teeth, the posterior ones being inaccessible to such methods.

As to the use of arsenic: if the practical application of dentistry was not so limited by small fees, preventing the dentist from giving this important operation all the time it deserves, he should adjust the rubber-dam in all cases that the tooth might be kept thoroughly dry and the work done, as all dental work should be, without trouble from saliva.

The operation should be performed with as little pain as possible; therefore, I invariably add to the arsenic an equal amount of the sulphate of morphia. This mixture I apply to the pulp, under differing methods, according to the different existing indications and temperament of the patient. In some cases the merest retaining place in the tooth will suffice for a devitalization of the pulp. While in other cases the approach to the pulp must be so immediate as to puncture it. When the application is to be made near the cervical margin, I first apply to the gum around the tooth oily carbolic acid, and then, instead of arsenical paste, I use the fibre.

Having applied the arsenic I seal it over with Gilbert's temporary stopping, or, in places where it is easily retained, simply covering with cotton saturated with sandrac varnish. This is allowed to remain in position for forty-eight hours, if it is convenient to so leave it. After which time I usually find the desired result, unless it be I have too hastily applied the vital irritant without quieting for a sufficient length of time a greatly inflamed pulp.

As pain is not necessarily present during the devitalization of a pulp, we need not wait for this symptom. A great many devitalizations have occurred with me in cases where the patients have come in and reported failures on account of experiencing no pain, after being informed that they would probably have a slight toothache for two or more hours.

If I find the pulp dead or in a condition where the patient can tolerate the work I remove the pulp at once, using none other than the Cox broach. This broach, invented by Dr. Norris R. Cox of this city (Portland), is far superior, in my opinion, to any other that has been presented to the profession. It is made from a steel guitar-string, filed down at the end, barbed, and the temper unchanged, and does the work without danger of leaving particles of the broach in the canal. If Dr. Cox would keep these broaches on sale, or make them for the dentists, instead of showing them how to make them, there would be none other used after giving them a trial.

After removing the pulp I dress the canal with an antiseptic dressing and allow it to remain for two or more days. When there is hemorrhage I prefer to use carbolic acid.

If I find only a portion of the pulp dead, I remove as much of the dead tissue as possible, stopping any hemorrhage which may occur, and then reapply the arsenic, having the patient to come for a renewal of this treatment every twenty-four hours until the entire pulp is dead.

When the pulp has not been entirely destroyed as the result of this treatment, but when others have been required, we naturally have more or less inflammation of the surrounding tissues, and the roots must be given a rest before being filled. During which time we can help matters by applying to the gum the tincture of aconite, and spotting over this with the tincture of iodine, never filling a root while it remains sore or tender upon touch. During which time the canal can with advantage be dressed with campho-pheneque, and nothing is better than to add a little iodoform, although the odor is an objectionable feature to its use.

When the root is ready for filling I always apply the rubber-dam, as I do in fact in many cases for simple treatment. Realizing that I cannot be certain that I have removed all particles of the pulp, I thoroughly disinfect the canal with a solution of 1-1000 bichloride of mercury, after which I dry the cavity thoroughly, using alcohol and hot air.

Gutta-percha is now dissolved in chloroform until it is about the consistency of cream, and as much as possible is pumped into the canal. If a small amount of this mixture should pass through the foramen it will cause no trouble, for we have taken pains to have no septic matter in the canal to be forced through, and, if the chloro-percha is not too thin, the amount that can possibly go through will be immaterial. After having put all into the canal that I can in this manner, I insert a gutta-percha point (Caulk's preferred) to the apex of the root, often until the patient shows evidence of sensibility in this neighborhood. I have found it advisable on account of the extreme flexibility of the gutta-percha points to cut off a small portion from the narrow extremity, thus giving it more firmness in pressing it through the chloro-percha.

In many canals in the roots of the posterior teeth, we cannot so much as insert the nerve broach. Such canals I never attempt to enlarge, but disinfect, using especially for these the king of all disinfectants, and filling the other one or two canals, as the case may be, according to the methods before mentioned.

When operators are constantly telling of going to the very end of every canal I have been slow to say how I treated inaccessible canals. But since I have examined a great many teeth after extracting them, in cases where the roots have been filled by these very men, and have so many times found only the large palatal root filled. I have no hesitation whatever in stating my own inability to effect an impossibility. I take consolation in the fact that the more difficult a root is to fill, on account of not being able to enter it, the less liable it is to give trouble, because of there being present less material to putrefy.

As for immediate root-filling, there can but one condition exist where I deem it advisable, and that is the simplest case of all, where the nerve has died from any cause whatever, but has never given any trouble. I apply the rubber-dam, cleanse and disinfect, dry the canal and proceed to fill with gutta-percha as in other cases. In these cases I have never had the slightest irritation—not even for the first few hours.

We meet another class of roots, some of them coming from dentists who do not believe in root-filling. Some of such roots are sore and elongated, if there be not indeed an abscess with or without a fistula to contend with. The first procedure indicated in such a state of affairs is to open into the pulp-canal, allowing free drainage. Wash out with tepid water and phenol-sodique, to remove the greater portion of the pyogenic detritus, thereby fitting the cavity for the immediate use of Marchand's per-oxide of hydrogen. If the per-oxide should be used in the first place, before such preliminary irrigation, its reaction upon the puss would generate such an amount of effervescence as to probably do damage to the soft parts about the root. I continue this treatment from time to time, until marked improvement ensues and then dress the canal with oil of cinnamon, and follow such treatment until the canal becomes sweet and clean.

For filling this kind of a canal I work a portion of iodoform to the apex, to remain there permanently; roll a shred of plain cotton tightly between the fingers, saturate it with fluid cosmoline and with a blunted exploring point carry it to the apex of root and pack firmly until the canal is filled, packing a small pellet of cotton upon this as a guard, so that if the bur happens to catch it while further preparing the crown, it will only remove the guard and not the whole work. The first layer of filling over this I make of cement, and when I am to fill a large crown I fill around some substance in the center which may be of wax, wood or any simple substance. After the filling is completed this temporary center substance is removed, and the space which it leaves, and which reaches down to the underlying cement, is filled with cement or facing amalgam—anything which can be removed from a sore tooth without giving great pain to the patient. In case of trouble occurring later, in a root so filled, we can open up the canal with ease, the root or roots treated again and put in proper condition and refilled as before.

With all the materials known to the profession for root-filling, the two mentioned are good enough for me to meet all cases, and, until something better is found I will use none other.

When these roots, with or without fistula, persistently give trouble, I take it for granted that there has been more or less absorption at the apex of the root, and, as a consequence, the point of the root has been roughened. When it is one of the superior anterior teeth, I apply a local anesthetic, lance the gum to the process, with the engine, drill through the alveolus to the apex of the root, remove a portion thereof, and any carious osseous material in that region, care being taken not to destroy the fillaments of nerves supplying the adjoining teeth. This cavity is thoroughly irrigated with phenol-sodique, the final dressing being oil of cinnamon. After this the trouble usually subsides.

If it were not for the fact that so many dentists, and good ones too, do so much work for nothing and keep themselves so hard up that they cannot afford to purchase such instruments and material to do good work, thinking that they must work for every patient that calls, we could collect a reasonable fee for the valuable services described in this paper, and root-filling and such work as pertains thereto would take the prominent position which it merits as the foundation of dentistry.

The present sentiments in root-filling are wrong. We should realize that in any city there is but a certain amount of dentistry to do, and if patients will not pay us what it is worth to do conscientious work for each one, that it may not matter how many are waiting in the reception-room we should stand upon our dignity and expect to let them go.

So far as I am concerned, while I do not send patients away every day, I do every week refuse work because I will not allow patients to fix prices for me upon work which they know nothing about. And especially have I turned away patients who would not pay even a medium price for work upon roots which require greater skill and consume more time than the superficial work which appeals to their eye, and for which they have been in the habit alone of paying for. If we would all adopt the methods I strictly adhere to in this matter, my dissatisfied patient would pay a reasonable fee to some other dentist, and I would likely fare as well from the dissatisfied ones of my brethren in the profesion, so we would all conjointly receive fair pay for good work.

How often does an operator, in giving an estimate of the probable expense to the patient, count the cavities without allowing a margin for capping or devitalizing pulps? for instance, when the appearances of the superior bicuspids, or the superior lateral incisors would indicate that such work would have to be done in order to leave the mouth in a proper condition? This is really the most important matter for which the dentist is being consulted, and upon it depends all of the artistic mechanics which is displayed upon the crowns and for which the patient is always willing to pay.

A VALUABLE PIVOT-TOOTH.

BY L. VAN ORDEN, M.D., SAN FRANCISCO.

SEVERAL times within the last two years the writer has been called upon to endeavor to improve the condition of a porcelain crown which had been grafted upon a superior incisor root. It had been bent forward by careless biting, and as it evidently had a metal dowel it was presumed to be a Logan crown· The possessor being a woman vocalist of some repute, one or two attempts were made to refill the gap on the lingual aspect with cement or amalgam. It was finally decided to disk the crown longitudinally and split it with a pair of excising forceps, leaving, if possible, the pin *in situ*, upon which a Bonwill crown was afterwards to be mounted, thereby avoiding any unnecessary disturbance of the root and canal.

The crown proved to be an old-fashioned wooden-pivot tooth. It was then ascertained that Dr. D. Van Denburg, a former practitioner of San Francisco, had some twenty years previously fastened a square platinum pin to the old pivot crown with amalgam, and in turn to the root with the same material.

Had a wooden pivot been used, as was customary at that date, she would, no doubt, long ago have been forced to have had recourse to a plate, which would have been an especial misfortune.

The pin was found to be firmly anchored, and a cavity, on the distal aspect of the root was filled with amalgam. As no Bonwill crown suitable to the case could be found a plate tooth was selected, and an ox-bow of gold wire was attached to the long pins, as recommended by Prof. Flagg in making what is termed a ring-pivot tooth. To give additional surface for adhesion with the amalgam, a piece of fine gold was "tacked" to the pins and burnished over the entire back of the tooth.

The thinness of the tooth permitted it to be set free from possible occlusion with the inferior teeth, and the lingual aspect was contoured with amalgam, thus securing the crown both to the pin and the amalgam in the face of the root. As the space to be closed was wide, the crown was made wider than the root-face, and the cervical border was allowed to rest directly upon the gum, with the result of securing a natural, cleanly, and healthful appearance.

As amalgam when used to repair defective gold fillings seems invariably to turn black, so it has been no matter of surprise to find the color of the amalgam contour to be a clear jet black, and, thanks to the tooth having a fine gold lining, the translucency of the crown is in no degree interfered with.

CROWNS.

BY J. T. HANKEY, L.D.S., ENGLAND.

[A Paper read before the Students' Society of the Dental Hospital of London.]

IT is my privilege to read a paper upon a subject, with which very few, at the present day, are not familar. Modern dentistry has made rapid strides to the fore; but no branch of our profession has, I venture to say, come more forcibly to the front, than the application of artificial crowns to healthy roots, and the restoration of articulation and appearance.

I shall not dwell upon the various methods of rendering unhealthy roots aseptic, but shall, in each case, assume that we are operating upon a healthy one, or one that has been rendered healthy by previous treatment.

As a preparatory step, it is well to discuss: When is a root suitable for crowning, and when is it not? Many of the failures that we come across may be justly attributed to a little too much zeal upon the part of the operator to crown a root, which upon second thought, he should have extracted. Dr. Evans writes as follows: "There are many teeth and roots which cannot be rendered suitable for crown work:

"1. Roots which are permeated and softened by decay.

"2. Roots exposed or loosened from the absorption of the gums and alveoli; or affected with irremediable disease of the investing membrane.

"3. Cases in which abscess with necrosis has extensively impaired the walls of the alveoli."

The suitable cases are too numerous to mention, but if when deciding between crowning and extraction, Dr. Evans' classification be borne in mind, it will be easy to determine when to crown and when not to do so.

At a first glance, a person reading one of the standard works upon the subject, is naturally bewildered with the number and variety of crowns, but upon closer examination, it will be observed that they may be divided into two classes.

Class I. Crowns without collars.

Class II. Crowns with collars.

Class II. may be again divided into:—

(*a*) All gold crowns.

(*b*) Gold crowns faced with porcelain.

My time being limited, I shall confine myself to a description of the more important and commonly used crowns, rather than to the more fanciful and artistic dentary appendages. I will therefore pass without any further introduction to Class I. Crowns without collars, usually known as pivots, are most commonly used for the six incisors, sometimes for the first and second premolars.

The various stages in the construction of a pivot are:—

1. Preparation and shaping of the root.
2. Enlarging the root canal.
3. Fitting pin and burnishing foil to root.
4. Soldering the foil to pin.
5. Fitting porcelain front.
6. Investing and soldering.
7. Fixing.

Assuming the root is in a healthy condition, the method of preparation is as follows:

The root should be exposed previous to the operation, by pressing the gum away with gutta-percha, thus greatly assisting the operator, by preventing unnecessary laceration and bleeding of the gum, which so often attends the shaping of the roots.

Operators have generally agreed that it is better to cut the root roof-shaped, with the slanting surfaces towards the labial and palatal aspects, respectively; the labial slope should be longer than the palatal, and should also be cut a slight distance under the gum line, so that no joint is seen between the root and the artificial tooth, when fixed.

The advantages claimed for this method of shaping the root, over the old style of cutting it quite flat, are, that more tooth substance is saved, thus allowing for a longer pin, also the pivot when fixed cannot possibly rotate.

Individual operators have their own ideas upon the instruments that should be used for shaping. I have found the large coarse-cut wheel burs most anvantageous, finishing off when reaching the gum line with a fine cut inlay wheel bur. Small corundum stones having the same diameter as the surface of the root, and, used with the flat surface towards the root, answer the same purpose, though they do not cut so rapidly. Should the root be decayed or broken down below the gum edge on either the mesial, distal or palatal aspect, this portion may be built up with amalgam, obtaining an undercut in the sound tissue.

Attention must now be given to the direction and position of the nerve canal. If, as often occurs, the opening is so directed towards the labial aspect as to interfere with the fitting of the tooth the canal must be enlarged backwards, this is effected with fissure burs or with drills of various forms. A spear-pointed or a spiral drill will be found most efficacious. In enlarging the canal, its direction should always be borne in mind, for the slightest deviation might lead to perforation of the walls, and thus cause trouble and perhaps loss of the root.

The canal walls should then be roughened, preferably with a wheel bur, to afford additional hold to the cement used for fixing.

A gold wire, as stout as possible, should now be accurately fitted as far up the root as possible, tapering the end, so that it will fit snugly up to the apex; at the point where it emerges from the canal, a slight groove should be cut round the pin, a piece of thin 22-carat gold plate or preferably platinum foil slightly larger than the root from before-backwards, is next selected, and an opening punched a size smaller than the diameter of the pin; the foil is then slipped over the pin and burnished to the root; the pin can now be withdrawn and the foil will come away with it, being held in position by the groove which was cut in it. A piece of No. ·00 gold solder is now placed on the joint and the pin and foil are firmly soldered together. It is again placed in position and the foil well burnished and trimmed to the root and over the palatal edge, where you will remember the root was left purposely high. It will be found to fit more accurately and easier of adaptation if it is snipped on this palatal aspect with a fine pair of scissors.

This method, recommended by Mr. Hern, forms a partial collar, and also tends to prevent any outward movement to the pivot. The pin should then be cut off to within one-eighth of an inch of the outer surface of the foil.

A flat plate tooth of suitable size and color is then backed with 22-carat gold or thin platinum and is fitted to the root; if the pin interferes with the fitting it should be bent back, also a notch may be cut in the tooth where it touches the pin, this trouble can be avoided by using a thin tooth, now manufactured by Messrs. Ash and Sons specially for crowns. The tooth should then be firmly attached to the plate with hard wax, and attention directed towards the bite. Previous to waxing, the napkin should be placed in the mouth and all parts thoroughly dried, thus obviating the difficulty which is sometimes experienced at this stage by the parts becoming wet. It must now be invested in plaster and pumice, gently heated up and soldered with No. 1 solder, care being taken to fill up all the crevices, to flush plenty of solder on the part which was burnished over the palatal surface, and to build up the tooth to represent nature as near as possible. It should then be allowed to cool, and filed up and polished in the ordinary way.

Previous to insertion the pin should be barbed with a sharp graver. For fixing, osteo, mastic or gutta-percha may be used. If with osteo the root should be thoroughly dried and well filled with very moist osteo, the pin should then be well covered and the pivot pressed home, being held in position until the cement sets, the surplus osteo should then be carefully trimmed away.

I will now pass on to Class II—crowns with collars.

Shaping the Root.—In the process of shaping the root for a perfect-fitting collar it is well to bear in mind the shape of a normal root at the gum edge. The root at the gum edge is of far greater diameter than below the gum ; it is therefore obvious that if we fit a collar to a root in its normal state we shall have an imperfectly fitting collar over a flange. Our object in shaping a root then must be to get rid of this flange, and have in its place a cone-shaped root which will enable the collar when soldered to become tighter the farther it is driven up the root.

For shaping, a variety of instruments are used; corundum stones of various shapes and sizes are preferred by some, while others pin their faith to scalers of various forms and patterns too numerous to mention. Of the many scalers suggested, I think Dr. Mitchell's heavy scaler is the most useful.

In using this instrument, the method of procedure is as follows. Having previously locally anesthetized the gum by passing up crystals of cocaine, between the root and the contiguous membrane, the scaler is inserted gently beneath the gum, and the edges are pared all round by withdrawing the scaler with the cutting edge tightly pressed against the overhanging edge. A sharp fine-cut fissure bur in the dental engine should then be passed all round the root, to remove any little rough points which may be left. If these directions be attended to, with a little practice a root may be speedily and easily trimmed and very little hemorrhage will ensue. If the root is very badly decayed below the gum, this may be remedied by building up that portion with amalgam, trimming it cone-shaped while it is still soft.

The size of the root should then be taken. This may be accomplished by passing a loop of thin binding wire round and twisting it up until it is quite tight with a little instrument I have suggested.

It will be found far more useful and less clumsy than a pair of pliers, which is generally used for this purpose. It consists of a straight steel rod flattened at the end, with two small holes drilled in the point, and a small button on the handle. The wire is passed through the two holes and pulled through until a loop corresponding in size to the root is attained; it is then slipped into the groove between two flanges of steel, this acts as a director; the two loose ends are then wound round the button, the loop is then placed round the root and the instrument is hoisted until the wire is quite tight.

The wire is now snipped at the join, and we have the exact size of the collar. A piece of 22-carat gold plate, No. 4 (Ash's) gauge, of suitable width is then cut, a trifle shorter than the wire, annealed and roughly bent to the shape of the root, the edges are then brought together, having been previously beveled, so that when soldered there will be a perfectly level joint, the parts are then cleaned with acid, washed, boraxed and soldered with No. ·00 gold solder.

With regard to the position of the joint, I think it is better to arrange for it to come where it will least interfere with any after-soldering, and this is in a porcelain crown generally towards the palatal side.

The collar should next be scolloped out where it will pass between the teeth; this is to allow for the alveolar ridge, which is, as you are aware, much higher between the teeth than on the labial and palatal aspects, then bevel the edge all round from without inwards. Having applied cocaine as before, the collar should be placed round the root and pressed or malleted well home; it should then be removed, and with a pair of contouring pliers contoured up to touch the contiguous teeth to prevent food from packing in between. Now trim off the biting edge perfectly level, and again apply the collar to the root, a piece of soft stent should be pressed into the collar and the patient requested to close the teeth. The collar should then be removed and the stent trimmed to represent cusps. The crown is then invested with stent to the upper edge of the gold all round. A metal cast of this is taken either in zinc or Mellotte's metal, and a cap is struck up by laying a piece of No. 4 (G) plate upon a block of lead and hammering the die into it. The cap must now be solidly filled up with No. 1 solder, and the collar cut down a portion corresponding to the gauge of the plate used for the cap; they are next soldered together; this is accomplished by placing the collar upon the cap, in position, carefully boraxing the edges all round, and holding them with a pair of fine tweezers over the Bunsen flame until the solder in the cap melts and joins the two together. The surplus gold may next be trimmed off and the crown filed up and polished in the ordinary way. To prevent the crown from crushing during the polishing it is as well to fill it up with stent. We have now an all-gold crown.

If it is desirable to face the crown with porcelain, a tooth of suitable shade and a little longer and wider than the gold crown should be selected. The under slope must be ground perfectly level by placing it against a corundum stone. The tooth should then be backed with pure gold, No. 4 gauge, allowing the backing to project out on all sides. The pins should not be bent, but allowed to stand out perfectly straight in order that the backing may be pulled on or off easily. With a fine fret saw a portion of the gold crown must be cut away on the buccal aspect similar in shape to the backing, cutting it away in front so that when fixed the join between the tooth and the gold will come just beneath the gum line. Now carefully fit the backing to the slot and arrange that the tooth when fitted will overlap the crown on either side. The parts must then be held tightly in position, and, with a sharp instrument working outside the collar, the place should be marked on the backing where the collar apposes it. Now remove the tooth and bind the collar and backing together in position with binding wire, borax the joints and solder with No. 2 solder. It is not necessary to invest in plaster and pumice, the excess of gold should now be removed with a sharp pair of shears, finally adjust the tooth to the crown, and with a fine-pointed pair of pliers the pins must be bent down tight against the backing by passing one blade of the pliers inside and one outside the crown.

With corundum stones in the dental engine the porcelain tooth must be shaped up, cutting it down flush with the gold wherever it meets it, using Arkansas stones lastly to produce a smoother surface, finishing off with pumice and whiting on the lathe.

To fix the crown, the best method is to cement a T-shaped pin in the root with either osteo or amalgam before adjusting the crown, then fill the crown with osteo and drive it well home; a good plan is to place about three thicknesses of napkin between the crown and the opposing teeth and press the jaws closely together. When the osteo has set, trim away the surplus as before, using great precaution to remove every particle.

The advantages of this method are —

1. That it is quicker, there being no investment required.
2. There is no possibility of cracking the tooth.
3. By bringing the back down under the tooth all fear of leakage occurring at the joint between the collar and porcelain is avoided.

The Logan Collar Crown.—There are various methods of making this crown, but I will describe to you what appears to me to be the most simple, as suggested some time ago by Mr. Northcroft.

A gold collar is fitted accurately to the root, as described before, while the collar is still in position. It is ground flush with the surface of the root with a corundum wheel. A gold roof is then fitted and soldered to the collar, and a hole punched over the orifice of the canal, corresponding in shape to the Logan pin. The Logan crown is then fitted to the cap by the aid of corundum or diamond wheels upon the dental engine.

Having accomplished this, the next step is to fill up the recess on the under surface of the crown by packing with cohesive gold. Old scraps of waste gold are very useful for this purpose.

The pin of the crown and the cap are then firmly attached with strong wax, and again placed in position while the wax is warm; any necessary alteration may then be made. The tooth and cap are then removed together and invested in pumice and plaster. The investment should cover the whole of the outer surface of the crown and collar, so that only the pin and the under-surface of the cap remain to view.

The investment should be very gradually heated to a red heat and soldered with No. 3 solder, flowing it into the space between the plate and the pin, using a small-pointed flame for this purpose. This done, the investment is allowed to cool very gradually, is removed, and any overhanging edge of porcelain cut down with corundum wheels, and the whole is polished.—*The Dental Record.*

SOME THOUGHTS ON THE PROPOSED MID-WINTER FAIR DENTAL CONGRESS.

BY DR. W. Z. KING, SAN FRANCISCO.

IT is comparatively but a few years since dentistry was considered and spoken of as but an offspring and special branch of the medical profession, and, indeed, many of the older members were proud to be so considered, and deemed it a great privilege, for which they were duly grateful, to have entré to the medical societies.

Now we have grown out of that and are on our own ground: a distinct profession in ourselves. To that end we have established our own institutions of instruction, our own associations, societies, journals, literature, text-books, etc., for our own edification.

The value of associational work cannot be overestimated, nor must that fact be lost sight of. We, as Pacific Coast dentists, are now but just organizing our greatest undertaking. No like opportunity has ever been ours. The question is: are we going to take a thorough advantage of it?

It is true we are possessed of several good societies, regularly organized, and filling a limited want, but comparatively few of the profession are reached by its influence, and their ranks are not what they should be in point of numbers.

The conception, organization and holding of the Midwinter Fair Dental Congress, should, and we feel confident that it will, do more to strengthen the ranks of the societies, the interest of members and the profession at large than any one project that has ever been attempted in any section of the country. Already new societies are springing up over the State, our men are being awakened to the real value of such organizations. The profession in Oakland has formed a dental club that will hold monthly meetings, and bids fair to be a peer, if not the superior, of any like organization in the State. Sacramento dentists have organized a city and county dental society, and it is in a very healthy condition. It, too, meets monthly and good papers are expected at every meeting.

Having been connected with the Congress movement from its very conception, I am free to say its policy is democratic, for and by the profession. Not for a limited few, but for any reputable practitioner amongst us. The desideratum is a great meeting, to which all may rally, become acquainted, renew old acquaintances, learn and teach—in short, touch upon all subjects of professional interest.

During our preliminary meetings I have met a large number of the profession, and no more thoroughly good fellows, both socially and professionally, has it been my lot to become acquainted with. These, perhaps, I should never have met had it not been for this cause, and their friendship I would otherwise have been deprived of.

Now, brother practitioners, you all can have a part in this work; it is yours and for you; there is a place for you, and a work and office for you to fill that will go undone and remain vacant if you do not set willing hands upon it. Come in at once and be identified with the work; catch the enthusiasim and be in every sense one of us. It will serve as a diversion from the every-day routine of work, which has too great a tendency to make us poorer company, poorer operators, and poorer men, tired of the drag of life and its living.

Do you know it is not possible to talk with intelligent members of our profession upon subjects appertaining to it for ten minutes without learning or imparting some useful idea? Don't fear you will be compelled to suffer your professional hair to be rubbed the wrong way; if such should happen it will not hurt you, as it is only by contact with others that we learn our worth.

At the great Columbian Dental Congress there was a total enrollment of eleven hundred and fifteen. Now we expect to have from three to five hundred to take a more or less active part in the proceedings of the Midwinter Fair Dental Congress during June next. To that end we want you, reader, to be one of our number, and in return we promise you a good professional holiday, and hope it will be of mutual and lasting benefit to all

REPORTS OF SOCIETY MEETINGS.

MIDWINTER FAIR DENTAL CONGRESS.

THE Midwinter Fair Dental Congress met in Parlor A, Palace Hotel, Wednesday evening, February 21st, Chairman L. A. Teague in the chair.

Reports from various committees were heard.

Chairman Hibbard of the Transportation Committee reported that he had visited the railroad people, and that they had promised something over a one-fare rate for round trip, as, for example, round-trip Los Angeles, $17.50; Portland, $27.50, including several tickets to the Exposition.

Chairman Iglehart showed several designs that had been received for the membership button.

The action at the last meeting of electing a nominating committee and proceeding to the election of permanent officers was rescinded, and the election deferred until the meeting of the Congress on June 11th.

In response to the request for additional members for the Finance Committee, the Chairman appointed Dr. Alexander Warner of San Francisco and Dr. O. Carpenter of Oakland, making that committee now stand as follows:

W. J. Younger (Chairman)	San Francisco
W. A. Knowles	San Francisco
Alfred Cane (Secretary)	San Francisco
W. R. Bird	Los Angeles
J. Marion Edmonds	Napa
A. Warner	San Francisco
O. Carpenter	Oakland

The Committee on Club was also enlarged to include five, and is:

W. J. Younger (Chairman)	San Francisco
J. D. Hodgen	San Francisco
Russell H. Cool	Oakland
C. W. Hibbard	San Francisco
J. A. W. Lundborg	San Francisco

Adjourned to meet in Parlor A, Palace Hotel, Thursday evening, March 15, 1893.

DENTAL MASS MEETING.

UPON his arrival in San Francisco, Dr. John N. Crouse, President of the American Dental Protective Association, called a meeting of the dentists of San Francisco and vicinity to be held in one of the parlors of the Palace Hotel, Wednesday evening, February 14th, where he addressed them on the past, present and future of the association.

Dr. William J. Younger introduced Dr. Crouse, who said it was his desire to meet the profession on this coast, to place before them the objects of the Protective Association, and to urge their interest in it. He logically pointed out the difference of effect upon the East and the West. In the former section, the practitioners were made to feel the oppression and get a taste of what might ensue from the fact of their greater proximity to royalty demanders. While, though the West did not as yet feel this, it was certain to do so if the Protective Association was not given the assistance from the profession it should have. The East was breaking the storm now, but California had felt it in the vulcanite cases.

He then gave a history of the litigation up to date. The Tooth-Crown Company had bought up all the patents possible, believing that the dental profession would "readily pay a royalty" on a poor patent. That they owned thirty-five patents at first, and forty-eight now; but when the Dental Protective Association was instituted their royalties soon began to fall off. They had invested $300,000 in these patents, but were deprived of from three to five millions in royalties, which they would otherwise have collected had it not been for the litigation they were thrown into.

The doctor stated that he had been working for ten years to unite the profession, in order to fight this company, and just now began to hope for the greatest success. Throughout the East the Crown Company had threatened to jail dentists to stop infringement, and had succeeded in frightening many of the profession into doing as they wanted them to do. Now is the time the profession should stand with four-fifths of its entire membership against the Crown Company, and become members of the Protective Association, instead of one-fourth as it is.

The ten dollars asked will not be greatly missed, and all will feel better for having assisted in such a cause.

In New York the Crown Company had obtained a favorable decision, and were enabled to and did collect royalties. Suits were commenced in several cities of the country, and the defendants joined the association and united their answers. Then the Crown Company advertised in country towns those dentists who were their licensees, and warned the public against all others.

About one year ago a large mass meeting was held in New York City, and a month later suits were commenced by various patentees, such as the Chase Plate Company, Land's Crown Company, etc.

Query.—Who furnished the "first wind"?

Answer.—The case brought in Milwaukee to enjoin the Crown Company from using threatening advertisements and circulars, and carried through successfully in Judge Jenkin's court. (At this stage Dr. Crouse was sued for $60,000 damages.)

The association now has a suit on hand in the Supreme Appellate Court of the Fourth District of New York, which will try all patent cases.

Then the doctor stated that the main object of his visit to this coast was to procure evidence for the defense of this case, and that he thought he had been entirely successful and believed the case as good as won.

The evil of the patent monopolies were then shown forth. He said the dental companies four years ago cornered the platinum market and raised the price of teeth from 10 to 15 cents each, and have been enabled to keep it there.

The doctor proposes to break down this dental trust and monopoly, and to that end has taken out a license in Chicago to do a dental manufacturing business, and has started a small factory for the manufacture of hand-pieces, burs and engines.

This is to be known as the nucleus of the "Dental Protective Supply Company of the United States;" a stock company in which all are invited to take shares. It is proposed by this company to furnish dentists with their supplies at a greatly reduced price, and control the patents and literature of the profession.

DR. JOHN N. CROUSE BANQUETED.

On Friday evening, February 16th, in the Maple-room of the Palace Hotel, the San Francisco Dental Association tendered a very enjoyable banquet to Dr. John N. Crouse, of Chicago, President of the American Dental Protective Association.

MENU.

Hûitres de l'Est sur Coquille.
Consommé Sultane.
Hors d'Œuvres Variés.

Paupiette de Bass Rayée a la Cardinal.
Pommes Gastronome. Salade de Tomates.

Quartier d'Agneau Printemps, Jardinière.
Bouchées de Ris de Veau a la Toulouse.
Punch au Marasquin.

Canard Mallard Roti Gelée de Groseille.
Haricots Verts, Maitre d'Hôtel. Celeri Mayonnaise.
Glace de Fantaisie. Patisserie.
Fruit. Fromage. Dessert. Café.

Dr. C. L. Goddard, President of the society, presided, and Dr. William J. Younger officiated as toast-master.

The first toast was to the American Dental Protective Association, and Dr. Crouse was asked to respond; to which he said he had hoped not to be called upon to speak upon that subject, as he fancied he had already said all that could be said at present upon the subject by him, and he apprehended his hosts might become somewhat tired of his one theme, or that he might be dubbed here, as in Chicago, the "Protective-Association fiend." There, on such an occasion men would say, "Don't call on Crouse, for he will talk of nothing but the Protective Association business." He preferred, instead, to recount the experiences of his visit, and thank the generous people of California for their exceptionally kind attention to strangers on their golden strand. Never, he said, had it been his pleasure to visit a community in which so much cordiality, so much solicitude, or so much real desire was manifested on the part of the people to make a stranger comfortable, as had been his experience in San Francisco. It did, indeed, seem strange that so much difference as that that existed between San Francisco and New York could have a place in the same nation.

Dr. C. L. Goddard then responded to the toast "The San

Francisco Dental Association," welcoming Dr. Crouse, and giving a short history of the society.

Dr. J. A. W. Lundborg followed in answer to the toast "The California State Dental Association," giving also a brief history of that organization.

To the "College of Dentistry, University of California," Dr. L. L. Dunbar responded in a tenor apropos. The dean, then in behalf of the college corporation, stated that the President of the Protective Association might enroll the College of Dentistry, as a corporation, a member of the Association.

To the "State Board of Dental Examiners," President Thomas Morffew responded.

"Midwinter Fair Dental Congress," Dr. W. F. Sharp.

"The Old Guard," Dr. W. Z. King.

"The New Recruits," Dr. H. P. Carlton.

"THE PACIFIC COAST DENTIST and the Midwinter Congress Dental Club," Dr. Joseph D. Hodgen.

"Associations," Dr. L. Van Orden.

Several other toasts were enjoyed, and many good stories were told.

SACRAMENTO DENTAL SOCIETY.

THE Sacramento Dental Society met Monday evening, February 12, 1894, and effected a permanent organization. The following officers were elected:

President	F. F. TEBBETS
Vice-President	I. G. SHAW
Secretary and Treasurer	F. H. METCALF

TRUSTEES:

Dr. F. F. Tebbets,	Dr. Reith,
Dr. Reid	Dr. Gerardy.

The meetings are to be held on the evening of the second Monday of each month.

LEEK VERSUS LEEK.

A SHORT time ago John J. Leek caused the arrest of his brother, George W. Leek, on a charge of criminal libel. The complaint embodied the following card, which it was shown in evidence the defendant caused to be published and distributed throughout the city:

WARNING.

There is a man occupying the rooms from which I have moved my College, whose name is J. J. Leek, who is a fraud and a fakir and has no right to practice dentistry, nor can he obtain a license to practice dentistry in any State in the Union, because he is incompetent and uneducated in the profession. He was a laborer on Tom Williams' (the horseman) ranch near Stockton until he fraudulently prefixed the title of "Doctor" to his name and proclaimed himself to be "Dr. J. J. Leek, Dentist." These are undisputed facts, yet neither the cowardly State Dental Association, nor the police, nor the prosecuting attorney of this city seem to care how much damage this illegally practicing humbug does to unsuspecting patients who may chance to make a mistake and get into his den of vice. Little do the officers of the law know how much damage this would-be dentist is doing by pumping victims full of dangerous gases or by forcing terriffic shocks of electricity through their bodies under the pretense of extracting teeth painlessly. A $10,000 suit is pending against him for injuring one patient (Harry Meyers) of this city.

God forbid that this fakir shall long be allowed to attract and deceive the public by his flaming posters on fences and notices in all advertising mediums of San Francisco.

In view of these facts I deem it my duty to the public to caution them not to mistake this man's business for the genuine Leek Dental College now located at 873½ Market street, near Fifth.

(Signed.) Dr. George W. Leek.

The preliminary trial of the case was had before Judge E. A. Belcher, in Department 11, of this city, March 2, 1894, and dismissed by him on the grounds as he stated, in his opinion, "no jury would convict the defendant," and that he looked upon the matter "as indecent that two brothers should be so estranged," and that the case was more suited for civil action.

On Monday evening, March 5th, the evening papers announced that a double suicide had been committed, and that J. J. Leek and Miss Alice Aldersey had been found in a dying condition in the office-rooms of the former. Miss Aldersey has since died, and Leek has recovered. An awful mystery enshrouds the terrible affair, the details of which have been published in the daily papers.

EDITORIAL.

THE DAILY PRESS.

IT appears to be the popular, or, at least, is the prevailing opinion among the younger and lesser lights of the editorial and reportorial staffs of the daily press that matter to be newsy must be "written up" in a highly sensational style, or that vein which, by a stretch of courtesy, may be called facetious, and that any other is not suitable for publication. In this we have the estimation in which we as a public are held by these immature molders of "public opinion." To the end of publishing what they are pleased to call a popular paper, you must be furnished at your breakfast or dinner a hash or salad of so-called news of this highly-seasoned and oiled variety. You are to be informed that your old and much-valued family physician, in whom and for whom you have the greatest respect and confidence, was the evening before engaged in a public brawl with other local "medicos," and is characterized as an unprincipled element of disturbance and a "back number" of the profession he has so long done honor. You are to learn that your dentist, who has for years conscientiously and scientifically cared for the teeth of your family, and whom you hold in much friendship and esteem, was last evening at a meeting of "warring wranglers" refused an office he coveted, and by unprincipled means was attempting to secure in the local or State society.

This, we say, is the manner in which you as the public, are to be informed of a meeting held the evening before absolutely devoid of sensational matter and only "fit" for publication when made so. Hence the distortion, exaggeration and untruthfulness of the report.

It seems to make little or no difference what is being written upon or what the facts are. It is all to be garnished and decorated in this pseudo plain-comedian style, or served in a manner which would do credit to the dime novelist of ten years ago.

We do not pretend to say that such a style cannot or does not have its proper sphere, or that it is barren of good when prescribed by talent; but this imitation, this vicious aping in the manner it is used, is an injury and a blight upon legitimate journalism. None recognize the power of the press more thoroughly nor more appreciate its accomplishment and American progressiveness than we, but at the same time none more strenuously deprecate the misuse and abuse to which its great columns many times are put.

The success of the Auxilliary Congress of our great exposition, we are glad to say, is dear to the hearts of the foremost journalists of the Coast, and second only in that particular to the Midwinter Fair itself. Of this the Dental Congress is a most prosperous part, bidding fair to be of all, the most thoroughly successful. Yet, notwithstanding, there has been permitted to be published on three or four occasions, in the very papers which have been the most active in the promotion of the Fair and Congress, columns devoted to slandering, ridiculing and misrepresenting the meetings of the General Committee of the Midwinter Fair Dental Congress in what was purported to be a truthful report of their proceedings. Whether such is the intent or not this is certainly calculated to very materially injure and hamper the success of this meeting.

As it has seemingly become popular to entitle articles relating to such meetings as: "*Trouble Among Tooth Carpenters,*" "*Pill Rollers Wrangle,*" "*Mud-Slinging Medicos,*" etc., or some ridiculous alliteration to catch the eye of the reader, and then proceed in an untruthful fashion to give an account of something that did not occur in columns that might have been used for the advancement of general good, it is fair to presume that the next gathering of some ministerial association that may take place in this city will be reported as "*Skeptical Sky-Pilots,*" or something of that sort, which will of course please the ministers and convulse the public.

No, it has come to that pass when any kind of a gathering is to be held, whether it be a mass meeting for the good of the community, a scientific discussion, a ministerial conference, a banquet, an at-home, a charity ball, or a what-not, the "representative of the press" must be taken by the hand upon his arrival and made the favored guest, introduced, wined, dined and petted, to prevent his highness from insulting the hosts and guests of the affair in the morning paper. And who is the reporter?

THE DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES.

FEW practitioners of dentistry realize what the above association is doing for the profession. What it has done is but faintly appreciated, and its possibilities for the future are so little understood that we feel it a duty to again refer to it in these pages.

Everywhere organizations and trusts have been made against the individual dentist as a consumer, because alone he could not combat them. It was better to pay the penalty than to take up single-handed a legal contest for his rights that meant a sacrifice of much more in time and money than the bonus asked for in non-interference. Individual prejudices have kept men isolated, and upon this fact have the combines based their estimate of profits.

The success of the Goodyear Dental Vulcanite Company was the incentive to other vampires until their numbers increased to legion, and from all sides the practitioner has been asked to stand and deliver.

The success of the Protective Association has been phenomenal in its contests with the International Tooth-Crown Company, that iniquitous successor to the Dental Vulcanite Company. They have been driven out of court in various localities, their collection of royalties practically put a stop to, and the ultimate downfall of this nest of conspirators being only a question of time.

Almost every operation in modern dentistry has been patented, and many that are not new have been similarly secured, so that the success of such an organization as the International Tooth Crown Company would have deluged the dental profession with applications for royalties, backed by legal processes that would have left the practitioner a veritable slave.

Investigation has proven that over ninety per cent. of all dental patents are not worth the paper they are written upon, legally considered. But this fact is of little importance to their holders, when contests are confined to individuals. To enforce them, however, against the combined strength of the profession is another matter. This is the reason for such organization, in which every self-respecting dental practitioner of the conntry should be enrolled, in which he must be when he comes to understand its benefits. It is safe to say that every practitioner who was ever a victim of the Vulcanite Company is so enrolled.

We have very recently had a visit from Dr. J. N. Croüse, President of the Protective Association, who is doing yeoman's work in perfecting its organization, and from whom we have learned something of the future aims of the society. After the smoke of battle has cleared away and the value of such united effort is shown, what is more natural than to effect some change in our sources of material supply? It is, of course, a well-known fact that large profits are made in manufactured articles of constant need in dental practice; that competitions in the making and vending of these articles has been restricted in order to keep the profits large.

The perplexity of such a combination means a loss of millions of dollars to the profession that can be saved by a counter combination of the Dental Protective Association engaging in the business of supply. Every member of the association can be a shareholder in this enterprise, and many are subscribers for a considerable amount. It is the grandest co-operative scheme ever undertaken, and will do the most good. What the profession needs is organization in a business sense (outside of any consideration of professional culture) for mutual protection against the dangers indicated herein, leaving the questions of culture and ethics to the professional societies organized for that purpose.

We should have upwards of five hundred members of such an organization in California alone. There are no onerous duties to perform, no meetings to attend, and but one payment of ten dollars required to secure membership and all the benefits present and future that appertain to it; no investment could possibly bring a greater return.

REMOVAL.

Dr. Joseph D. Hodgen has removed to No. 1005 Sutter street, between Hyde and Larkin.

All communications, books, journals, pamphlets, etc., intended for the editor should be addressed as above.

All communications intended for the Secretary of the California State Board of Dental Examiners, or the Secretary of the National Association of Dental Examiners, should be similarly addressed.

COMMUNICATIONS.

AMERICAN MEDICAL ASSOCIATION.

THE Committee of Arrangements has secured Odd Fellows' Hall building, corner Market and Seventh streets, for the meeting of June 5, 1894.

Assembly Hall, for the general meeting, has a capacity of 1500. The twelve smaller halls for section work, range in capacity from 500 downward, with committee rooms adjacent.

The engagement carries three of the rooms on Monday for accommodation of associate organizations, as that of the editors, colleges, etc.

The banquet-room on the ground floor, 65x95 feet, will be devoted to exhibition purposes, for which it is admirably adapted, and has been secured for the entire week, that exhibitors may have Monday in which to place their goods, and Saturday in which to remove them. Nearly half of the space is already taken, and others who desire to make a display of their goods, under the most auspicious circumstances ever presented on the Pacific Coast, should lose no time in applying to the chairman for space.

Headquarters for the Association have been located at the Palace Hotel, corner Market and Montgomery streets, only four blocks from the place of meeting. Here we have Marble Hall, 30x40 feet, as a registration room, where work will begin on Monday; and Parlor A, for committee work.

The following hotels, centrally situated and convenient to the place of meeting, have quoted special rates for members and their families, which will apply during the entire stay of the guests, who should, upon registering, signify that they are in attendance upon the meeting of the Association.

The rates quoted are for single persons, the variation depending upon the size, situation and appurtenances of the rooms—as single, en suite, with private bath, etc. Special arrangements will be made for families, or parties, on timely notice.

Some of the hotels entertain upon the American plan only, some upon the European plan only, and some on either plan to suit guests.

	Per day.
Palace Hotel (headquarters)—American plan*	$3 50 to $5 00
" " " European plan†	1 50 to 3 50
Baldwin Hotel—American plan	3 50 to 5 00
" " European "	1 00 to 3 00
California Hotel—American plan	3 50 and up
" " European "	1 50 " "
Lick House—American plan	2 50 " "
" " European "	1 00 " "
Russ House—American plan	2 00 to 3 50
" " European "	50 to 2 00
Occidental Hotel—American plan (only)	2 50 and up
Hotel Pleasanton—American plan "	2 50 to 5 00
Grand Hotel (connected with the Palace by a glass-covered bridge across New Montgomery street)—European plan only	1 00 to 2 00

*Rooms and board. †Rooms only.

In addition, there are many other hotels, boarding-houses, lodging-houses, and restaurants contiguous to the place of meeting, where one can be made happy and comfortable at less cost.

Post-office Station K, is located in the Palace Hotel, on the office floor adjacent to the Registration-room, where members can receive all mail matter by having it so addressed.

More anon. R. H. Plummer, Chairman.

A CORRECTION.

Chicago, March 6, 1894.

Editor Pacific Coast Dentist: In a circular just received announcing a course of instructions at San Jose, in the E. Parmly Brown's system, it is stated that "Dr. L. P.

Haskell, of Chicago, who has been one of the most persistent opponents of crown and bridge-work in the profession," etc., This is a mistatement of my views which I desire to correct.

I never was opposed to crown-work; on the other hand, have always said that a good root could be made as serviceable with an artificial crown as it ever was with its natural crown. But I have always been opposed to the indiscriminate use of bridges. There are cases where a bridge is the best thing to be done for the patient if properly constructed. The Parmly Brown system has removed the only, if not quite all, objections to bridge-work, and we teach and recommend it in our school.

L. P. Haskell.

NOTICES.

BOOKS RECEIVED.

Catching's Compendium of Practical Dentistry, for 1893. B. H. Catching, D.D.S., editor and publisher. Atlanta, Ga. Franklin Printing and Publishing Company, 1894. Price, cloth, $2 50.

No one who has ever become acquainted with this valuable periodical will be without it. It is the condensed practical results of the dental journals of six different nations.

The Compendium has long since passed through the experimental stage, as the editor says, and is now a reality, and a necessity for every active, progressive dentist to enable him to keep fully abreast with the dental profession.

JOURNALS RECEIVED.

We have had no little trouble in receiving our quota of exchanges, notwithstanding that we have taken pains to see that the Pacific Coast Dentist is forwarded to every dental periodical that is published. The following have been received regularly, and will please accept our thankfulness for the same:

Dental Cosmos.
Dental Register.
Dental Review.
International Dental Journal.
Items of Interest.
Ohio Dental Journal.
Southern Dental Journal and Luminary.
Western Dental Journal.
Dental Practitioner and Advertiser.
Pacific Dental Journal.
Texas Dental Journal.
Dental Record.
L'Odonto ogie.

Die Zahutechnische Reform.
La Odontologia.
Revista Dental Americana.
Southern California Practitioner (medical.)
Pacific Medical Journal.
National Popular Review (medical.)

PAMPHLETS RECEIVED.

Hood & Reynolds send us a very handsome souvenir pamphlet entitled "A Treatise on Gold Foil," which includes a short history of the firm and the process of refining and manufacturing gold foil, the whole beautifully illustrated and magnificently gotten up, not to say anything of the real value of the pamphlet as an interesting one for perusal.

Hood & Reynolds have always shown themselves to be a progressive and thorough firm, and the gold they have placed upon the market has the virtue of being just what they claim for it. It is safe to say there is none better.

KALEIDOSCOPIC.

The Kansas City Dental College held its twelfth annual commencement at Grand Avenue M. E. Church, March 5, 1894. The order of exercises were: Overture, "Northern Light," Battery "B" Orchestra; Prayer; Serenade, "May Time," orchestra; Faculty address, Alton H. Thompson, D.D.S., Topeka; Cornet solo, "Think of Me," orchestra; Conferring degrees and distribution of prizes, C. B. Hewitt, D.D.S., President of the Faculty; Address, Rev. C. B. Mitchell; Selection, "Princess de Trebizonde," orchestra; Valedictory, J. B. Brady, of the graduating class; Benediction; Selection, "Bridal Song," orchestra.

Graduates.—James Arthur Miller, California; James Burns Brady, New Mexico; Charles Nelson Rathbun, Iowa; Joseph Edgar McKee, Missouri; Harry Evert Duncan, Kansas; John Hockaday Galliher, Missouri; Schuyler Waller Pile, Kansas; Ellsworth L. Rothrock, Kansas; Charles Canning Allen, Kansas; Augustus Morton Wilkes, Kansas; George Thomas Reily, Missouri; Richard Andrew Millen, Missouri; Archibald Benjamin Stote, Kansas; Abram Thompson, Kansas; Eugene Wesley Allendorph, Kansas; Henry A. Kinnan, Iowa.

Curative Treatment of Tic Douloureux or Facial Neuralgia—Facial neuralgia, known under the name of "tic douloureux," is the symptomatic expression of a lesion of the terminal nervous extremities, of a cicatricial nature.

It is in the cicatrix of the alveolar tissues or in the deep alterations of the tissues in that region as a result of a chronic alveolar dental periostitis, or arthritis, or during infectious distubances brought on by a vicious eruption of the third molar, that is seated the fundamental nervous lesion, the subjective symptom of which is a spasmodic neuralgia of the face.

The cicatricial region of the alveolus which contains this lesion of the nervous extremities is determined by the etiological antecedents, as indicated above, and also by the point of departure of the painful phenomenon which is often indicated by the patient. Finally, in a certain number of cases, an exploration of the gums, seized between the thumb and index finger, will bring on a painful sensation on a level with the suspected region. It is this region, comprising generally the extent of one alveolar opening, which must be well delineated, and if necessary exposed by the extraction of one or two teeth which limit the region on each side, before proceeding to its removal.

This operation must be done as follows. It can be divided into three parts:

First part. Excision of the mucous membrane and periosteum covering the parts of the alveolar border to be removed.

After having made a thorough antiseptic washing of the buccal cavity, and anesthetized the region to be operated by means of an injection of a two per cent. cocaine hydrochlorate solution, a deep longitudinal incision is made along the free alveolar border, extending to the length of two centimeters through the mucous membrane and periosteum. A second incision, penetrating also down to the bone and parallel to the preceding, but only one centimeter long, is made on the buccal side of the alveolus at about the level of the alveolar region which was occupied by the apex of the tooth when in position. Finally, the two extremities of these two incisions are joined together by incisions obliquely directed from above downward—that is, from the crest of the alveolus to the incision on the outside of the alveolar wall. When these two incisions are made, the mucous membrane inclosed in the incision has the form of a trapezium; this is removed with the corresponding part of the periosteum.

The same operatfon is now made on the opposite side of the alveolus—that is, on its palatal or lingual side an incision is made on a level with the apex of the alveolus on the lingual side, and joined to the incision on the free alveolar border. Another trapezium of mucous membrane and periosteum is removed, and we have now a denuded surface of bone starting from about the level of the apex of the alveolus on the lingual side, and extending to a corresponding line on the buccal side. These incisions limit the bone which is to be excised.

Second part. Excision of the denuded part of the alveolar border.

By means of a circular saw and the dental engine, two oblique sections of bone are made, following the lines indicated by the section of the soft tissues, and converging toward the apex of the alveolus, as it will be remembered that the incision opposite the apex, both on the lingual or palatal side and on the buccal side, is only one centimeter long, while the one on the free border is two centimeters. The section of bone is now only adherent to the maxilla by its summit. It must now be removed with a cutting forceps.

Third part. When all the osseous portion of the alveolar border has been removed, the osseous wound is scraped in such a manner as to remove all *debris* or irregularities which have been produced by sectioning with the cutting forceps. This part of the operation is carried on by means of a round bur, until the finger indicates that the whole surface is even.

The operation being finished, the wound is washed and dressed by means of antiseptic pellets of cotton introduced into the alveolus.

Every case treated up to now in the manner above indicated has been cured or greatly ameliorated.—*V. Jarre, M.D., Paris, France, in Dental Cosmos.*

Dentition and Some of its Diseases.—Normal dentition is comparatively harmless. The teething in wild animals and barbarous nations is usually attended with no danger, and but little inconvenience. The young, however, of beasts confined in cages rarely live during the period of teeth.

In our age of civilized refinement, abnormal dentition is the rule. So deadly has it become, that one-third of the human family die before the twenty deciduous teeth have fully appeared. Its danger is constantly increasing. A few decades ago, when the practice of mothers nursing their children was more in vogue, the fatality was not nearly so great. Latterly it has become unfashionable, and children are fed on artificial food, and the result is an alarming mortality. Dentition in these children develops incidentally many diseases. The commonest are irritative fever, indigestion—with its attendant evils, flatulency, constipation, and diarrhœa—cerebral convulsions, stomatitis, capillary bronchitis, and pneumonia. Practically, it is almost impossible to, at times, segregate the foregoing diseases. Clinically one or most of them may be present, in the cutting of a single tooth. Irritative fever is the most frequent. The gums, irritated by the advancing tooth, generate a poisonous mucus, the salivary glands become abnormally active, and a rise in temperature appears. This saliva is swallowed, and interferes with the digestion of food that otherwise even would be difficult to assimilate. Flatulency, constipation, or its opposite, diarrhœa, are evils now present. This now poisonous ingesta may produce, through reflex sympathy, cerebral convulsions.

In childhood, the nervous system so preponderates that any irritant will readily disturb the delicately balanced equipoise. Adults, with nerves trained to pain and suffering, know how toothache will derange the entire nerve-system, and even increase a degree or two the body temperature.

The infantile tooth gradually rising through the gums, producing continuous tension, develops various forms of constitutional as well as local disturbances. The mucous membrane becomes red, hot, swollen, and tender. The saliva is greatly increased, and the itching over the protruding teeth is so annoying that to allay it the child tries to bite everything that comes in its way. A nervous or irritative fever now appears. The temperature will often rise to 104 or even 105 degrees, when eclampsia may come on. Though "teething convulsions" have been denied by a few modern medical writers, yet their existence has so often been corroborated by clinical experience, their etiology cannot be gainsaid. During the coma of these convulsions, capillary bronchitis may arise as a complication, and when it does it is often fatal.

Purulent conjunctivitis has often been found during the time the upper cuspids are being cut. In this case, inflammatory action is transmitted through the antrum of Highmore During dentition elampsia is very common, as well as fatal, in the children of drunkards, who also are more liable to gingivitis and the different forms of stomatitis.

Coughs often accompany the appearance of the upper teeth, which resist medical treatment until after the teeth have fully appeared. Exanthemata, especially eczema impetiginosum, may occur at this period, which stubbornly resist treatment—and fortunately they do, for if cured dangerous cerebral complications would present themselves, the skin-disease forming as it were a safety-valve.

During the teeth-evolution the submaxillary glands are often swollen, and I have often seen the cervical glands enlarged and suppurating, especially in children of scrofulous or rachitic parents.

The treatment for all these diseases should be anticipated, and prophylactic. The time-worn saw of "an ounce of prevention" is especially applicable here. Dentition is a dangerous period in a child's life, and should be jealously watched by mother and physician. Conditions, hygienic and dietetic, should be most propitious.

Every unfavorable complication should be met at the threshold, and if possible mastered. Diarrhœa, so common, is a safeguard in expelling from the system morbid material, and should not suddenly be checked. Paregoric, so usually administered by the laity at this time, often works irremediable mischief in the stoppage of the flux which nature has wisely instituted for the benofit of the child. Should it become chronic and weakening, it should then receive the physician's care. Usually, minute doses of hydrargyrum cum creta, bicarbonate of soda, and tannin for a day or two, followed by oil, will rectify the trouble. Excessive temperature should at once be controlled by baths, lessening the feed, enemas and aconite. Cutaneous affections should receive no attention during this period. Capillary bronchitis, pneumonia, and other diseases of the respiratory organs, should be treated as indicated, but prevented if possible. Restlessness can often be overcome by hot baths, with aconite and bromides. If the tooth is just breaking through the gums, lancing it will often afford prompt relief. Delayed dentition in young children may be remedied by vigorous constitutional treatment of pure air, wholesome food, bathing, cod-liver oil, and citrate of iron and quinine.—*Dr. Marion Thrasher, in Journ. Amer. Med. Ass'n.*

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ORIGINAL COMMUNICATIONS.

REFINING GOLD.

BY JOSEPH D. HODGEN, D.D.S., SAN FRANCISCO,
Assistant to the Chair of Dental Metallurgy, College of Dentistry,
University of California.

[Concluded from page 107.]

Preparation of Pure Gold.—Chemically pure gold may be prepared by several methods. The metal, either in the form of powder, granulations, thin plate, or "cornets" from the purest gold that can be obtained, is dissolved in chemically pure nitro-hydrochloric acid. This acid is made of one volume of nitric with two of hydrochloric. The best material to operate on is gold which has been refined in the ordinary way; this, as has just been hinted, may be used in the form of a powder, as it is precipitated in the last process, as granulations or as plate. The acid for small quantities is best contained in an evaporating dish placed in a sand-bath upon a tripod, over the flame of a Bunsen burner, beneath a chimney or near an open window. The action of this acid upon the metal will be tolerably energetic when first introduced; hence, it is not necessary to ignite the burner at first, but as the action slackens a moderate heat may be applied.

Instead of previously mixing the acids, the hydrochloric acid may first be poured over the metal, and the nitric acid afterward gradually added in small portions, the function of the

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NOTE.—The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in this country.

nitric acid being to oxidize the hydrogen of the hydrochloric acid, converting it into water, while the chlorine, which is the active solvent, is liberated in the nascent state and unites with the gold, converting it into auric chloride, which dissolves.*

Each ounce of gold will require about three and one-half ounces of mixed acid for its solution. During the process of solution a sediment will be noticed in the bottom of the evaporating dish, and which will be recognized by the operator as argentic chloride, formed by the union of the silver contained in the gold and the liberated chlorine. It must not be expected that all the silver will be directly precipitated to the bottom as a chloride, for the liquor is strongly acid, and some may be held in solution. Therefore, this must be taken into consideration, and subsequent pains taken to throw it down by the thorough evaporation of the nitric acid. The gold having been dissolved, the solution is now best transferred to a clean dish by decantation, leaving the chloride of silver in the first and the solution contained in the second dish heated to further evaporate. When about one-third is evaporated more chloride of silver will be found to have been separated from the solution and precipitated. It is well, therefore, to again transfer the solution to a third dish by decantation and evaporate as before, care always being maintained during the heating not to apply so great a temperature as to decompose the auric salt.

As the bulk is reduced over the gentle heat by evaporation, small quantities of hydrochloric acid are to be added from time to time, which has the effect of liberating nitrous anhydride by decomposing the remaining nitric acid in the liquor; these additions must, however, be made very cautiously, for the action produced is very energetic, and, without due precaution, considerable portions of the now rich liquid will be spirted out of the dish and lost. When the liquid has become of a deep red color, and of the consistency of syrup, it is to be withdrawn from the heat and permitted to rest for a time, when the whole of the auric chloride will crystallize, forming a mass of prismatic crystals.†

The bottom of the dish is now carefully wiped off to remove any sand or dirt that may have collected there from the sand-bath, and the dish and its contents submerged into about a half pint of *distilled water*, acidulated slightly with a few drops of hydrochloric acid. It is better now to let this solution stand a week, for chloride of silver, although slightly soluble in a very strong and hot acid solution, is separated by dilution, and, by allowing this rest, it will therefore completely subside in the vessel. At the end of this time the solution must be filtered to remove any foreign substance, together with the argentic chloride. The filtrate will then be seen to be a rich straw-yellow, and the gold it contains is ready for precipitation.

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*"American System of Dentistry: Metallurgy." Kirk.

†"Manual of Metallurgy." Makins.

Precipitating the Gold.—The prepared solution is now best contained in a large beaker, and the precipitating reagent added. As gold is one of those metals which, as a base, combines with very feeble affinities, it is consequently not only very easily separated, but the physical conditions of the precipitate may be much modified and controlled by the nature of the precipitant, as also by the mode of operating. Thus gold may be thrown down in a powder, in scales, in more or less of a crystalline state, in a tolerably compact sheet or foil, or lastly in a spongy condition. And these states may be attained with some degree of certainty, although the circumstances determining the more compact forms are hardly yet well understood.

Spontaneous precipitation may take place to some extent in a vessel of terchloride of gold when exposed to the air; and thus the sides of the vessel containing it will slowly become covered with the deposit. This is probably due to the action of the nitrogen of the air. Many elementary substances will precipitate gold from the terchloride. Thus sulphur or selenium, if immersed in a hot solution, becomes penetrated by films of gold. Most of the lower metals reduce it, some metallic salts throw it down, and many organic bodies readily precipitate it. Thus sugar when boiled in it gives at first a light red precipitate, which afterwards darkens in color.*

Practically, however, ferrous sulphate or oxalic acid are the only precipitants used. The oxalic acid is preferred, and is an excellent precipitant.

The gold salt, being in solution, is broken up by the addition of a strong solution of oxalic acid, and the gold is precipitated to the bottom as either a crystalline mass or a leafy foil. It is necessary to add a slight excess, and the whole should be kept at a gentle heat in a sand-bath over a flame. Soon after the application of heat some slight bubbling is noticed and a copious evolution of gas takes place, and at the same time the body of the liquid appears filled with most delicate spangles of metallic gold, which become coherent as they descend, and in consequence assume most any one of the forms above mentioned. The gas noticed to escape is CO_2 from the compound known as oxalic acid. The reaction is of the simplest—an acid on a binary salt—

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*"Manual of Metallurgy." Makins.

$$2\,Au\,Cl_3 + 3C_2\,H_2\,O_4 = 6H\,Cl + 6\,CO_2 + 2\,Au.$$

The action of this precipitant being gradual and capable of much regulation by the amount of heat employed; while it is also peculiar in being attended throughout by this evolution of gas which rises quickly through the solution, there is produced from the former cause a tendency in a metal to deposit in a crystalline or crystallo-granular state; while from the latter a more or less spongy character is given to it; hence it will be readily seen that inasmuch as we are able to modify these conditions, so we can in the same degree influence the nature of the result.

Where ferrous sulphate is used about five times the weight of the gold will be necessary for precipitation. This may be dissolved quickly in hot distilled water and added to the gold solution. The precipitate thrown down is of a brown color, and will, on being gently burnished with the finger-nail, assume that metallic golden lustre characteristic of the metal. The following is the reaction:

$$2\,Au\,Cl_3 + 6\,Fe\,SO_4 = Fe_2\,Cl_6 + 2\,Fe_2\,(SO_4)_3 + 2\,Au.$$

After the solution has fully subsided from the disturbance caused by addition and precipitation a quantity of hot hydrochloric acid may be added, and much of the supernatant liquor removed, either with a siphon or by decantation, and the remainder of the solution and precipitate poured upon the filter paper. The precipitate is afterwards washed with hydrochloric acid, distilled water, aqua ammonia, and again with distilled water. The necessity of this is apparent, especially in the use of ferrous sulphate as the precipitate will become more or less contaminated with the iron, and in the use of oxalic acid to remove the copper, as gold precipitated by oxalic acid from an acid solution containing copper is always contaminated with cupric oxalate. It is then also advisable to heat the solution with a slight addition of potassium hydrate, a soluble double oxalate of copper and potash is formed, and the gold is left in the pure state.* When the precipitated gold has been carefully washed and rewashed with distilled water, and the above-mentioned reagents, it may be dried and placed in a new crucible, previously boraxed, with some potassium carbonate and potassium nitrate, melted and cast into an ingot. If iron ingot-moulds are used the gold should be washed after moulding in hot hydrochloric acid to remove any trace of metallic or oxide of iron that may by chance have adhered to its surface during the process of casting the ingot.

The apparatus required in this process is as follows:

Chemically pure nitric acid.
Chemically pure hydrochloric acid.
Aqua ammonia.
Potassium hydrate.
Potassium nitrate.
Potassium carbonate.
Powdered borax.
Sulphate of iron (C. P.) or oxalic acid (C. P.)
Filter and paper.
Distilled water.
Three evaporating dishes.
A sand-bath.
Sand crucibles,
A tripod.
Bunsen burner.
One large beaker.
Ingot moulds.

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* E. Purgotti.

SELECTIONS.

ON COAGULANTS IN THE TREATMENT OF THE PULP-CHAMBER AND CANALS.

BY EDWARD C. KIRK, D.D.S., PHILADELPHIA, PA.

[Read before the joint meeting of the First and Second District Dental Societies of the State of New York, February 12, 1894.]

READERS of periodical dental literature will have observed, during the past few years, statements by writers and speakers upon dental therapeutics to the effect that medicaments which possess the property of forming a coagulum with albuminous organic matter should be excluded from the treatment of pulpless teeth. Such statements are made with growing frequency, quite regardless of the excellent clinical record made by coagulant antiseptics, and especially since the able researches of Professor Miller and Professor G. V. Black have thrown so much light upon the antiseptic value of a number of substances which are devoid of the coagulating property, and which it has been proposed to utilize instead of coagulants in pulp-canal treatment.

The objection which is made to the use of coagulants by those who condemn them in this connection is, as nearly as I have been able to ascertain, based upon the assumption—for I regard it as such—that when introduced into a pulp-chamber their action is to superficially seal the dentinal tubuli by forming an impenetrable coagulum with the orificial end of their albuminoid contents. This is believed to produce the two-fold result of preventing the further entrance of the coagulant or any other antiseptic, and also of hermetically inclosing within the tubular structure of the dentine a certain quantity of non-sterilized or infected organic matter, which may by its decomposition act subsequently as an irritant to the pericemental membrane. If the major premise of this assumption be a correct statement of the actual conditions, then we must admit the corrollaries as deduced from it; but in so doing we necessarily admit that our best-known and most generally used antiseptics in the treatment of pulp-canals—viz, carbolic acid, zinc chloride and corrosive sublimate—do not penetrate the dentine structure, and consequently sterilize only a superficial film of organic matter lining the pulp-chamber and canals. The long clinical record in favor of the substances named would seem to indicate that their action in the pulp-canal is something more than a superficial action, and that their penetrating power is not self-limited because of the coagulating property which is common to each. It is my purpose to call attention to what I believe to be a serious error in this reasoning, which has led to the somewhat general condemnation of coagulants in pulp-canal treatment, and to present the basis for my belief that the coagulating property is not *per se* sufficient reason for their disuse; or, stated otherwise, if they are unsuited for the purpose of pulp-canal treatment, it must be for other reasons than that they are coagulants. The popular objection to the use of coagulant antiseptics is fairly stated by Dr. A. W. Harlan, who, so far as I can learn, appears to have been the originator, or at least the chief exponent, of the assumption. He says in his report as chairman of Section V of the American Dental Association in 1889 (*vide* Transactions), referring to Professor G. V. Black's paper on Antiseptics,* "The above paper practically opened up the subject of the value in dental practice of the agents which, with a few minor exceptions, may be classed as non-coagulants. . . . The experiments above referred to, in fact, refute the idea that coagulants are necessary to accomplish the destruction of microbes. It is not denied here that coagulants are useful medicaments in dental practice, but we maintain that in the treatment of pulpless teeth for purposes of disinfection they are not only useless but detrimental; *in fact, their use defeats the object sought to be obtained. They coagulate the organic surface with which they come in contact, and prevent their own diffusion.* A diffusible disinfectant is constant and ever-acting. One that coagulates, cooks or destroys is not indicated in this line of practice."

In the discussion which followed the reading of this report, Dr. William H. Atkinson made the following significant remarks: "We must go a little deeper, and nominate the changes that occur between the food product and the chemical product, that is, the result of the changes made by bringing the various substances together. There are affinities resident in the primal elements that have to be satisfied to bring about the changes we have recognized. We have not recognized the true theory so as to get at the alphabet of the molecular changes when we are considering the results as we deal with diseased tissue."

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* Dental Review, 1889, p. 128.

Again, in discussion of a paper by Dr. Harlan, read before the American Dental Association in 1887, entitled "A Note on the Value of Resorcin in Checking the Production of Pus Around the Roots of Teeth," Dr. Atkinson said: "He (the author) asserts dogmatically that anything that will coagulate albumen is not fit to be used in the treatment of the root-canal. . . . Chloride of zinc has repeatedly been introduced to preserve exposed pulps, that has converted the entire pulp throughout the length of the canal into a hyaline coagulum that has proved just as good a filling as can be, and has stood from year to year, and without coloring the teeth or giving any indication of any retrogressive movement whatever."

At the same meeting Professor James Truman said, in speaking of the necessity for sterilizing and rendering inert the organic matter present in the tubuli of pulpless teeth to prevent subsequent discoloration of the tooth and pericemental irritation, "My study of the subject and the result of much experimentation led me to the conclusion that it was essential to prevent this decomposition, and that this could be accomplished by coagulating the organic tissue. The coagulant best adapted for this purpose is chloride of zinc, because of its great affinity for water. It will follow moisture to the very extremities of the tubulated structure, and consequently change the character of its contents so that decomposition will not take place. I have kept albumen under chloride of zinc for months out of the mouth without destructive change occurring, and therefore I have reason to infer that it will prevent its taking place in the tooth.

"I have gone to considerable trouble in endeavoring to demonstrate that chloride of zinc passes into the tooth, and I had intended to read a paper before this society on the subject, but the examinations were not complete, so that I cannot say that I have absolutely proved it, but can only reason theoretically that it must pass into it."

The official report of the proceedings does not show that Dr.

Harlan made the dogmatic assertion attributed to him at that meeting by Dr. Atkinson, but in the *Dental Review* for 1889, page 44, in a paper upon "Escharotics and Coagulants," he states as follows: "Coagulators of albumen must be kept out of pulpless teeth. No necessity exists for their use in pulpless teeth. Coagulation always prevents diffusion of vapors and vaporizable substances." Earlier in the same paper he says: "A coagulum is, however, an effectual barrier to the immediate penetration of medicaments in roots of teeth for the purpose of disinfection, and should not be produced." That the effect of this teaching has been to gain numbers of advocates is apparent to all who are readers of dental literature. Two instances will serve to show that the idea has taken root and flourished among those who are striving for the best results in the therapeusis of pulpless teeth. In a paper on "Treatment of Teeth Having Foul Pulps," by A. Retter, D.D.S., Utica, N. Y.,* the author says in his otherwise practical and valuable paper, after recommending the use of a saponifying agent—*e. g.*, sodium carbonate or ammonia—as a preliminary treatment of infected pulp-canals. "No substance which has the power to coagulate albumen should be used at this stage, for such action prevents the ingress or penetration of a germicide, as well as the escape of septic matter and its gases. A tooth may become well by their use at this stage of treatment, but it does it in spite of such unreasonable treatment, and not on account of it." He says further in closing, "The after-success and comfort of teeth thus treated depends largely upon the care and choice with which the roots shall be filled. Up to this stage I have avoided, as much as possible, anything that might clog or close up the tubuli. Now I desire a material that will go to the end and soak into the tubuli as much as possible, and for this purpose I prefer two agents. The first is oxychloride of zinc—provided the canal is large enough to permit of its successful working. This material, from its affinity for moisture, will penetrate deeply and persistently into the tubuli, coagulating whatever tissue may be in them, and rendering them non-decomposable." It should be noted in this connection that whatever of coagulating power is possessed by this compound is to be attributed to the action of the free zinc chloride, before combination has taken place with the oxide of zinc to form the oxychloride, as the resulting cement is devoid of coagulating power. His other favorite preparation for this purpose is an alcoholic solution of shellac containing hydronaphthol.

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*Dental Cosmos, 1889, p. 933.

In a paper on "Conservative Treatment of the Dental Pulp," by Dr. C. Hugenschmidt, of Paris, France, read before the Southern Dental Association,* he says, "When we apply a coagulating antiseptic we, of course, set a barrier to the further action of the remedy, as as been repeatedly and correctly stated by our confrère, Dr. Harlan, in reference to the use of coagulating antiseptics for the treatment of dead teeth."

It is evident, then, that the question with which we have to deal at present is simply as follows: Do coagulant antiseptics produce with albuminous matter a coagulum which is a barrier to the further diffusion of the coagulant or other medicaments? Or, as has been asserted, are coagulants self-limiting in their action? An equally important subject for consideration is the antiseptic value of the coagulum so formed, but is apart from the immediate question at issue, though I hope to be able to present the results of some experiments upon this subject in a future communication.

If the assumption be correct that coagulants seal up the orifices of the dentinal tubuli with an impenetrable coagulum, and are therefore self-limiting in their action, it would seem that we are confronted in this case with a definite exception to the well-established laws of diffusion known as osmosis. I hope to be able to show, before concluding this paper, that such is not the case, and that the assumption as noted is based either upon faulty reasoning or insufficiet data. I shall also endeavor to demonstrate that coagula are not necessarily barriers to diffusible antiseptics, that the uncompromising physical forces of osmosis or carillarity are operative in the case of coagula, and that diffusion of liquids will take place through—nay, even by means of such septa.

I am well aware of the difference of opinion on this point among some of the profession, but I am inclined to believe that those who advocate the abandonment of these valuable agents are in a small minority, and that their views are largely influenced by the faulty assumption which I have noted.

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* Ibid, 1890, p. 720.

The use of coagulants such as carbolic acid, zinc chloride, sublimate, etc., has not only overwhelming clinical evidence in its favor, as most of you can no doubt testify, but it is actually proper on theoretical grounds, and fully in harmony with the laws of osmosis. I do not wish to be understood as favoring the indiscriminate use of these substances, for they possess individual characteristic properties and effects which may rightfully exclude their usage under certain conditions. What I wish to emphasize is that their coagulating property cannot be scientifically or clinically urged as an objection against their proper use.

As the laws of osmotic action are those which will explain the phenomena with which we are at present dealing, I wish to ask your attention for a few moments to a hasty glance at that subject.

The observed natural tendency of all fluids, whether liquid or gaseous, to diffuse, interpenetrate, or mix with one another, is called diffusion. It is a natural tendency dependent upon molecular attraction, and takes place without mechanical action and in apparent disregard of the force of gravitation. It is based upon a well-established force termed capillary attraction or adhesion, where the surfaces of different kinds of molecules of matter cling or adhere together. When such diffusion of liquids however, takes place by means of or through a membrane, it is called osmosis. Both diffusion and osmosis take place in accordance with well-defined physical laws, whose formulation is the outcome of numerous experiments and careful observation by men of different eras and climes. Such names as Abbé Nollet, 1748; Parrot, 1802; Sœmmering and Van Mons, 1812; Lebkuechner, 1813; Majendie, 1820; Fischer of Breslau, 1822; the brilliant French physicist Dutrochet, 1837; and finally, Professor Graham of England have been among the most prominent investigators of osmotic phenomena.

The space usually allotted to a paper of this character will not admit of more than brief mention of the general result of their work, which was as careful and ingenious as it was varied, and led to but one resulting generalization,—viz, that capillary attraction, so-called, is the fundamental principle underlying all phenomena of diffusion or osmosis. Whether it be the absorption of nutrient pabulum in our bodies, the suction of sap from the earth by flower or plant, the gathering of clouds overhead, or, as I hope to show, the penetration of coagulant antiseptics in the treatment of pulpless teeth, the same force of adhesion or capillary attraction is the basis of the phenomena. There is no essential difference between penetration or diffusion *in* or *out* of the body, between the so-called vital or the physical. This point seems to be definitely settled. The main conditions favorable to osmosis, briefly stated, are:

1. That the substance to osmose be crystallizable and readily soluble. If they are amorphous (colloid) and insoluble they will not penetrate the membrane.

2. Since substances have to pass through the membrane in order to meet each other, the membrane itself must be capable of imbibition, of being wetted by both solutions; in other words, of taking them up into its substance.

3. Both liquids must be miscible with each other. If they are not, diffusion cannot take place.

4. They must be of different densities or dissimilar in kind.

This much for general diffusibility of liquids. The *rate* of diffusion depends upon additional factors, since it is well known that membranes do not imbibe all solutions with the same degree of activity. Liebig has shown that distilled water is always taken up in greatest quantity, and that crystallizable solutions enter membranes in an inverse ratio to their density. The greater the density, provided it does not exceed a certain percentage, the stronger will the current toward itself be (endosmosis). Weaker solutions diffuse more rapidly toward strong than *vice versa.* Albumen is the most powerful producer of endosmosis, hence it is that it plays such an important part in absorption in the human system. Heat, slight elevation of temperature, is another factor in rapid osmosis, as are the variations in density, pressure, affinity and nature of liquids to be diffused.

For gases, the law is more uniform, namely: That they diffuse in inverse ratio to the square foot of their density. But how do coagulants, crystalloid agents that coagulate albumen or the albuminous constituents of the permeable membrane act?

Mialhe has shown,* as I propose to show to-night, that these substances, although somewhat slowly, are nevertheless taken up by and diffused through membranes. He has likewise shown that they are also taken up by blood-vessels. We have in the three substances mentioned at the beginning of this paper—viz, chloride of zinc, carbolic acid, and sublimate—typical coagulant antiseptics, whose properties are quite familiar to all of you. If a test-tube containing a strong solution of zinc chloride, say to one-fourth or one-third of its depth, have carefully added to it, so as not to agitate the surface of the zinc solution, an equal bulk of fresh egg-albumen, we will observe at the contact point of the two liquids the formation of a dense white opaque film, which is the coagulatum formed by the union of the two substances. Observe at this point that we have at once fulfilled all the conditions needful for osmosis. We have the crystalloid zinc solution, the colloid albumen, and the membrane consisting of the coagulum separating these two liquids of unequal density, both with strong affinity for each other, and both capable of wetting or penetrating the membrane. We are therefore justified in expecting osmosis to take place, and from what we already know of the power of albumen to induce endosmosis—that is, osmosis toward and into itself—we should naturally expect the coagulum to proceed throughout the entire extent of the albumen column. This, as a matter of fact, it does in a comparatively short time, and if we have been careful to previously mark the original level of zinc solution, which will indicate the surface of the first contact of the two liquids, we will find at the close of this experiment, when the albumen has completely solidified, that the level is exactly as it was originally, showing that the result has been brought about by osmotic action regardless of gravitation, and is not produced by a mere mechanical mixing of the liquids. It shows incontestably what is more to our purpose, that the assertion that "coagulants defeat the object sought to attained, by coagulating the organic surface with which they come in contact, and prevent their own diffusion," is an error simply because it is not in accordance with the facts. The experiment just noted has been carried out with sublimate and with carbolic acid respectively, with exactly similar results so far as the osmotic feature is concerned, the only difference being in the relative rates of penetration or diffusion of the coagulants into the albumen.

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* "Chimie Appliquée a la Physiologie," Paris, 1856, p. 200.

Miller states* that "bichloride of mercury in power applied to the end of a pulp one and one-half inches in length [taken from the first molar of a calf] permeated the whole pulp within forty-eight hours, converting it into a stiff gray mass. Such pulps removed from the tubes at any time from two days to eight weeks were completely preserved, without a trace of smell or any sign of decomposition. In no case did any development take place around the pulps when they were placed on nutritive agar-agar; not only that, but the pulps themselves showed a powerful antiseptic action." He states further† that "teeth subjected to the action of concentrated carbolic acid for one and three-quarter hours were not sterilized throughout." This does not necessarily prove that the carbolic acid has not penetrated the tooth; for it may mean that the antiseptic power of the carbolic acid is reduced or annihilated by the albuminous matter of the dentine-matrix or tubular contents with which it has formed a coagulum. He says,‡ with respect to this, and I fully accord with his views: "Some substances act only in virtue of their own dissolution, and in the same degree as they act they lose the power to act further, and eventually become completely inert. Peroxide of hydrogen is a well-known example of this class. It cannot act without giving up its extra atom of oxygen, and in doing so it becomes simply water, an inert substance. Now, without having made a thorough study of this question, I am convinced that a similar loss of power is suffered by nearly all, if not all, antiseptics is the course of time. I have found that threads of cotton saturated with concentrated carbolic acid and brought into root-canals some months or even weeks later had completely lost their antiseptic action; particularly was this the case where there was a large open foramen."

This quantitative relationship which must exist between the antiseptic used and the infectious material is a necessary deduction from the fact that the acts of sterilization and disinfection involve chemical reactions which produce new compounds, and all such must take place in definite proportions by weight, in accordance with well-known chemical laws. This question I have presented elsewhere.*

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* Dental Cosmos, August, 1890. † Ibid, May, 1891. ‡ Ibid, August, 1890.

Miller's experiments on the penetrative charter of antiseptics for treatment on carious dentine gave results expressed in terms of their relative sterilizing power, which gave first place to sublimate, followed by zinc chloride and carbolic acid. These latter two gave different results, depending upon the method of experimentation. In my tube experiments with egg-albumen the rate of penetration is greatly in favor of zinc chloride over carbolic acid.

With respect to carbolic acid, Dr. Harlan says,† "It coagulates the surface of the animal matrix of the tooth, rendering it necessary to cut away the surface before filling is attempted if we desire to preserve the color of the crown of the tooth. It is self-limiting in a hard structure, and is not diffusible." This statement he makes, unsupported by any record of experiment to demonstrate its accuracy, which I strongly question. With respect to its action upon pulp-tissue, Miller says,‡ "Carbolic acid gave results so similar to those obtained with trichlorphenol that they need not be especially described. Its action appears, on the whole, not quite as powerful as that of trichlorphenol." And of trichlorphenol: "It possesses the property of penetrating pulp-tissue very rapidly, thoroughly hardening it, and imparting to it a beautiful pink to red color. It also exerts a powerful antiseptic action, so that in its pulp-preserving property I think I may put it by the side of the sulphate of copper, although carbolic acid, chloride of zinc and oil of cinnamon will compete with it for the place." Of zinc chloride he says: "Chloride of zinc penetrates the tissue quite as rapidly, and in some cases it has appeared even more rapidly than sublimate. Applied on cotton to the end of a pulp one and a half inches long, it will permeate the whole pulp in forty-eight hours, converting it into a grayish-white stiff body.

"Such pulps transferred to the agar-agar plates very seldom showed any development of bacteria, except at the extreme point.

"The antiseptic power of the chloride of zinc is, however, known to be inferior to that of many other available antiseptics, so that, on the whole, I am not yet sure where this agent should be placed on the list. This will be determined by further experiments. It certainly has thus far produced a favorable impression."

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* Dental Cosmos, November, 1891, p. 1033.

† "Synthetic Carbolic Acid." Transactions Joint Meeting of the American and Southern Dental Associations, 1890.

‡ Dental Cosmos, August, 1890.

These statements are presented as evidence deduced from careful experimentation, to show that none of the coagulant antiseptics which we are considering are self-limiting in their action, so far as egg-albumen or the soft tissues are concerned. That there is a marked difference in their relative power of penetration is evident, but it is equally evident that they are amenable to the forces of osmosis, and permeate tissue in accordance therewith.

Now, with respect to the possibility of their osmosis in the dentine structure. To settle this matter the following experiments were undertaken: Recently extracted, sound teeth, which had been preserved in a dilute solution of boroglycerid, were opened from the masticating surface, or, in the case of incisors, from the lingual surface, with a drill, and communication thus established with the pulp-chamber, care being taken to disturb the pulp as slightly as possible. The aperture of entrance was enlarged and made conical, with the base of the cone away from the pulp-chamber, and into this was fitted with cement a glass tube with its end drawn down to a funnel or cone shape, so that it fitted into the cone-shaped aperture of the tooth as accurately as possible. The apical foramina of all the roots so prepared were closed by dipping the root-ends into melted Canada balsam. By this arrangement a funnel-like tube in direct water-tight communication with the pulp-chamber was secured. In the experiments of this character thus far carried out, my observations have been confined to zinc chloride and sublimate. Into a number of the teeth thus fitted with tubes a saturated solution of zinc chloride was poured, and similarly in others sublimate in saturated solution was used. Those containing the zinc salt were immersed up to the anatomical neck of the tooth in egg-albumen contained in test-tubes. The funnel-tube attached to the tooth was passed tightly through a cork, and this arrangement maintained the the tooth at the determined depth in the albumen. It is now evident that if the coagulant antiseptic, zinc chloride, is self-limiting in its action, and sets up an impenetrable barrier to its own diffusion, none of it can possibly pass through the root-walls by osmotic action.

On the contrary, if this be an error, then in the course of time the zinc salt will find its way through the structure of the root and manifest its exit by coagulating the albumen surrounding the root. In these experiments, after twenty-four hours there was evidence of the forming of coagulum upon the outer surface of the root, and two days later the coagulum had spread so as to come in contact with the walls of the containing test-tube and completely envelop the root throughout its entire length.

From this we may infer that zinc chloride is not a self-limiting coagulant when applied to the hard structure of the tooth-root. The tests with sublimate were arranged somewhat differently with respect to the end reaction to demonstrate the exit of the sublimate through the root-walls. Instead of immersing the roots in albumen, this phase of the experiment was varied by using a solution of potassium iodide, to which mercuric chloride was previously added until the precipitate of mercuric iodide was no longer redissolved; the solution was then filtered clear. It is evident that the slightest addition of mercuric chloride to such a solution will be made manifest by the production of the characteristic red precipitate of mercuric iodide. Teeth prepared as for the zinc chloride test, filled with a saturated solution of sublimate, and immersed to the anatomical neck in the iodide solution, showed the characteristic color reaction in three days. Therefore corrosive sublimate is not a self-limiting coagulant when applied to the hard structure of the tooth.

Similar experiments upon the penetrative power of carbolic acid are still in progress, and though they are not sufficiently completed to form the basis of a report, I think I have enough evidence to show that this substance follows the general laws of osmosis as do the other crystallizable coagulant antiseptics, though the rate of penetration is much slower.

We have seen thus far that these substances do not oppose a self-constituted barrier to their own diffusion through tissue, albumen or dentine. It remains, however, to inquire whether the coagula formed by them will permit the passage of other antiseptics—*i. e.*, whether coagula as septa will support or induce osmosis as do other membranes. To test this question a special apparatus was devised which would furnish ocular evidence as to the fact of osmosis through coagula if such action occurred. A test-tube one inch in diameter, eight inches in length, and having an inlet-tube at its base, was supported vertically, mouth upwards, to a retort stand by means of a suitable clamp. A small funnel held by a ring-clamp to the same support was connected to the inlet-tube of the test-tube by a length of rubber tubing. A saturated solution of sublimate was then cautiously poured in at the funnel until the solution rose slightly above the level of the open mouth of the vertical test-tube, forming a convex surface to the liquid. Upon this surface was carefully placed by a sliding motion a coagulum of zinc chloride and albumen, approximately three mm. thick, which had been previously obtained by pouring egg-albumen upon the surface of a saturated solution of zinc chloride in a flat dish and afterward carefully washing the coagulum with distilled water. The edge of the coagulum when in position was trimmed with a sharp knife to correspond with the edge of the test-tube flange, in the same way that a cook trims the edge of a pie-cover to the edge of a pie-plate. On top of this diaphragm of zinc-chloride coagulum another test-tube of the same dimensions, with the bottom blown out, was placed mouth downward, and the joint completed and made perfectly tight by wrapping with a half-inch strip of rubber-dam, which was carefully tied in place on each tube and subsequently varnished with asphaltum varnish. As soon as the joint was perfected, a quantity of the potassium-iodide solution before referred to was poured into the tube above the coagulum diaphragm, and the funnel was simultaneously raised to a point which brought the surface of the liquids in the two arms of the apparatus to the same level. This was done that the pressure on both sides of the diaphragm should be equal. It is now evident that the only means of communication possible between the two liquids must be through the coagulum; also, if such a communication should take place, it would be made evident by the formation of the characteristic mercuric iodide. In less than two hours the reaction had occurred, the precipitate forming in the upper tube containing iodide solution. The same experiment was repeated with the liquids reversed, and the precipitate was again formed, this time in the lower tube, which now contained the iodide solution.

Further experiments with the esmometer were tried, using the same solutions, but varying the conditions by the introduction of different membranes—bladder, stomach, blood-vessels, etc.—coagulated by zinc chloride, sublimate and carbolic acid, also with membranes untreated and under varying conditions of temperature and pressure, with the common result that in each instance penetration and osmosis readily took place.

From which I infer that coagulant antiseptics are not self-limiting barriers to the diffusion of antiseptics other than themselves, when the conditions necessary to osmosis are fulfilled. The subject is a very broad one, and difficult to treat even superficially within the limits of a paper of this character. There is a large field for investigation as to the questions whether coagulation invariably means sterilization, the extent to which antisepsis and disinfection are produced by coagulants, and how their therapeutic action is modified by the presence or absence of albumen, and especially as to the quantitative relationships of these agents to the amount of infected and decomposing tissue involved. All of these matters, are however, aside from the immediate problem which I have endeavored to set before you—viz: Do coagulants prevent diffusion of antiseptics in the treatment of pulpless teeth?

Some one in criticising our general educational methods has made the following statement, which to some extent seems to me to be applicable to the question at issue:

"Our system of education is principally a process of mental stuffing. The habit of examining and criticising evidence is nowhere taught except in our law schools, and there only very imperfectly. To accept as true all that established authority says is true, and to store up such statements in the mind by an effort of memory, is the kind of training which principally prevails. And if it be granted that most of the utterances of accepted authorities are true, the power to criticise evidence, to determine that which is true or false, and to arrive at just conclusions, is still of far higher value than the mere memorizing of facts. But the fault is not alone confined to the cultivation of a habit of accepting statements of truth solely upon authority. It is equally true that things are taught in our schools of which, to say the least, their truth is yet an open question, and upon these doubtful questions it is insisted, more strongly than upon any others, that they should be blindly accepted upon authority."

I cannot close this paper without acknowledging my great indebtedness to Dr. L. F. Elstein, of Philadelphia, for his intelligent aid in preparing the bibliography of the subject.—*Dental Cosmos.*

RELATIVE TO IMMEDIATE ROOT-FILLING AND A FEW ITEMS CONCERNING THE MANAGEMENT OF TEETH WITH PULPS DEAD BEFORE TREATMENT.

BY EDMUND NOYES, D.D.S., CHICAGO.

[Read before the Chicago Dental Society, Feb. 6, 1894.]

THE more I have thought about these subjects, and read about them, the more impossible it appears to say anything new, and the only excuse for this paper is to say that as long as we see repetitions of incorrect, fallacious or misleading theories and opinions regarding them, and the advocacy of inadequate, injurious or impracticable modes of procedure, so long it will be necessary and useful to repeat correct theories and opinions, and describe suitable modes of operating. No attempt will be made to cover the whole field, for this paper must be short, and doubtless there will be opportunity in the discussion for some of you to mention items that you may think more important than those I shall describe.

Immediate root-filling may be defined as the filling of roots at the first sitting when anything is done within the pulp-chambers or canals, or, if a pulp has been devitalized, filling at the same sitting when the pulp is removed.

The subject of immediate root-filling has often been discussed with reference to the possibility of it, and the cases in which it can be done without danger of disastrous consequences following, rather than upon the broader grounds of its suitability, convenience and general utility.

A paper on this subject was read before the Illinois State Dental Society at its last meeting, which discussed very briefly the question "Is Immediate Root-Filling Advisable:

1. After heroic extirpation of a live pulp?
2. After removing a devitalized pulp?
3. After removing a putrescent pulp?
4. When there is peridental membrane abscess with fistulous opening?
5. The same, without fistulous opening? (Blind abscess)."

The essay gave an affirmative answer to each proposition. These cases appear to include about all diseased teeth requiring root fillings, except those presenting themselves with acute pericementitis or acute abscess. Whether the essayist would also fill these at the first sitting did not certainly appear from his paper, but it is hard to see why he should not, unless deterred by the illness of the patient or the soreness of the tooth, from making a sitting sufficiently long to accomplish it.*

The first two heads, namely, "After extirpation of a live pulp," and "After removing a devitalized pulp," are so nearly alike in their relations to this question that they may be considered together. These cases furnish the most frequent and suitable opportunities for immediate root fillings, and there are no serious objections to them if required by convenience or necessity. However, when we remember that a large proportion of root-fillings have to be made in bicuspids and molars, and consider the difficulty of getting away all portions of the pulps from small roots, we often find that root filling "after the removal of all pulp tissue" does not always prove to be so very "immediate." Probably the recently described methods of cleansing pulp canals by means of kalium-natrium, or dilute sulphuric acid, may make the accomplishment of it at one sitting more practicable than heretofore.

The objections to immediate filling in these cases (after extirpation is complete) relate to the difficulty of controlling hemorrhage or exudation, and consequently of obtaining complete dryness of the canals, to the irritability or sensitiveness of the parts at the apex, manifested by severe pain during the introduction of the filling, and which is apt to be much greater if the filling is carried to the apex as it should be, than if it stops short of its proper destination, and lastly the liability of greater soreness and discomfort following the operation, than would be the case if delayed till another sitting.

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*Dr. J. R. Clayton in a paper before the Indiana Society, last June, described several cases, among which was one with very acute pericementitis, and one with acute blind abscess, both of which were successful. (He mentions no failures.)

There are many cases in which these objections do not exist, or may be easily overcome, and many others in which they *may* be overcome or endured if it is desirable or necessary, and there can be no universal rule of good practice laid down, but every operator will form his own habits in the matter, in accordance with his own preferences, or the special requirements of his particular practice. It is likely that country practitioners will complete these operations at once in a much larger proportion of cases than those in cities, whose patients are more accessible, and in the habit of being more fully subject to the requirements of their dentist in the matter of numerous sittings.

The third class of cases, those having putrescent pulps, should have a broader definition, if intended (as appeared from its treatment in the paper) to cover the cases all the way between, but not including, those devitalized and filled without sepsis, and those in which an abscess has been formed. The first of the subheads in this class is suppurating pulps; the second putrescent pulps; and a third, those in which the decomposition and removal of the pulp is complete, but without the formation of an abscess. Each of these three subdivisions implies that the pulp-chamber or root-canal is open or has been open.

The most significant and important thing about all these cases is sepsis or infection, and there are two decisive objections against immediate root-filling, unless for some reason the necessity for it is so urgent as to justify the taking of considerable risk.

The first objection is in the fact that disinfection, to be thorough and trustworthy, requires time for its accomplishment. The second objection is the impossibility of knowing certainly whether the apical space has become infected, or whether it is infected during the operation, which is liable to happen, notwithstanding all possible care, if the work is complete at the first sitting. A very large proportion of these cases will do well if immediately filled, and some of them are so near like the preceding ones as really to belong to them. For instance, if a suppurating or putrescent pulp shows some life, and its removal is followed by somewhat free hemorrhage, the portion next the apex appearing to be in a nearly normal condition, there would be little fear of trouble if immediately filled. If, however, the whole root canal appears to be in a septic condition, it cannot be cleaned and filled at once without unjustifiable risk of subsequent trouble that could probably be avoided by taking more time.

The first point to be gained in these cases is the disinfection of the root canals This is more quickly and surely accomplished after the removal of so much of their contents as can be got away without danger of forcing anything through the foramina. Then some strong and diffusible antiseptic should be placed in them for some days. (Free diffusibility is more important than great strength or concentration.)

This application may usually be tightly closed in by a gutta-percha stopping, though a vent will sometimes prove necessary. At the second sitting the canals may usually be safely cleaned out to the foramina, though I have seen cases in which oil cassia and myrtol had been tightly enclosed for a week, without developing the least trouble, which yet became acutely inflamed, and in some instances formed abscesses after thoroughly cleaning and treatment at the second sitting, showing (probably) that the disinfection of the apical portions of the root-canals had not been so complete as was expected. (There may be some cases in which acute peridental inflammation is caused by the antiseptic instead of by infection, but if that is the cause, it will not develop into an abscess.)

The third sub-class above mentioned (in which the decomposition and removal of the pulp are complete) are not always distinguishable from those having blind abscesses, and the same general line of treatment usually proves appropriate in either case, though if there is active formation of pus, or if it becomes active under the stimulation of treatment, a tight closing in of the medicine is, of course, impracticable at first. That anybody should seriously advocate the immediate filling of roots that will not bear a tight temporary stopping for half a day without severe pain and inflammation, which is promptly relieved by removal of the stopping, seems incomprehensible. Perhaps no one does advocate it in just these cases, but some certainly do in cases that are impossible to distinguish from these at the first sitting. If there is a dead pulp, with the peridental membrane and the tissues at the apical space in a normal condition, we have only to remove the corpse and disinfect the chamber and canals, but if the apical tissues are diseased, we need in addition to have them cured before we fill the roots, or so far in the way to recovery that the remainder of the process can be depended upon to complete itself. This would seem to be so reasonable a proposition as to need no argument, but it has been urged by some that the foramen of a root is usually so small as not to permit the drainage of a blind abscess through it to the diseased apical tissues. This is undoubtedly the case in a few in a few instances, but clinical observation is conclusive to the contrary in a very large proportion of cases.

In regard to the immediate filling of teeth with blind abscesses, I will quote from the essay already frequently referred to: "Diagnosis of blind abscess of alveolar process is largely guesswork, because the single item of a wet canal does not prove the presence of pus, nor the existence of an abscess cavity. When blind abscess exists, the accumulation of pus is so very slight that it will cease altogether after the cause has been removed by closing the apical end of the pulp canal. In nearly all such cases prompt closure at the apex will be followed by no noticeable inflammation, if proper care be observed in manipulation within the pulp canal." It is true that the diagnosis of a chronic and quiescent blind abscess is sometimes difficult, and we may sometimes treat a pulpless tooth till assured of its healthy condition, and fill it, without ever certainly knowing whether a small blind abscess has been cured during the treatment, or whether none ever existed; but there are rather numerous instances in which, after removal of the contents of the pulp canal, the discharge of pus is abundantly sufficient to make the diagnosis certain, and most of us have often passed a fine probe through the foramen into acute abscess of this sort and seen them discharge so large a quantity of puss through the pulp canal as very effectually to controvert the statement that " when blind abscess exists, the accumulation of puss is so *very slight* that it will cease altogether after the cause has been removed by closing the apical end of the pulp canal." It must never be forgotten that although the contents of the pulp chamber and canals were the first cause of the abscess, when once established, the contents of the abscess cavity may constitute a continuing cause, which it is as necessary to remove, surgically or therapeutically, as to remove that part of the cause contained within the pulp chamber and canals.

I will quote again: "In all cases the apical end of a pulp-canal should be permanently closed as soon as the canal is laudable—that is to say—as soon as free from pus or other fluid, and all obstructive matter." "A clear, clean canal is always laudable." I think we can all agree to this if we add the requirement, that by taking sufficient time, and giving proper treatment, we have ascertained that the canal will remain laudable. The statement of the essayist immediately following does not fullfil that requirement, for he says, "I would remove all obstructive matter from the canal, absorb moisture from it till no more appears, and immediately and permanently fill the canal." It is true that a good many blind abscesses will get well after being once pretty thoroughly drained, and having the canal permanently closed, but no man can certainly tell which ones will fail to do so, and it would seem inexcusable to take so great a risk when there is no necessity for it. The cases of blind abscesses are the ones in which immediate root-filling is most dangerous and least justifiable. In closing the discussion, the essayist quoted from, referring to a remark by Dr. Black to the effect that "Evidence of skill in a dentist is not so much in his success in the large majority of cases that are likely to do well, as with the minority which will give trouble to the patient unless very skillfully handled," said: "Dr. Black has divided immediate root-filling cases into majority and minority, admitting that the large majority are successful. * * * *He* did not state what the minority is. Close observation for twelve years leads *me* to estimate the minority at ten per cent. There is no political party under the sun that cares a rap for a minority that represents only ten per cent." This last comparison is an unfortunate one, for in cases of immediate root-filling the minority does not feel bound by the action of the majority, and I assure you, gentlemen, that any man who is obliged to confess to a failure of ten per cent. of all his cases of root-filling (for this essayist appears to fill everything "immediately") must have urgent need to revise his modes of practice in this particular, and if we remember that this ten per cent. of failures must be nearly all included in those having putrescent pulps, foul canals or blind abscesses, making the proportion of failures probably at least twice or three times as great for those, we hardly need stronger argument against immediate root filling as a universal practice, than this confession by one of its advocates.

We find a few teeth with dead pulps that are so free from decay as to make it certain that the pulp chambers have never been opened. We do not always feel called upon to disturb them, but frequently we do. In a majority of them sepsis is plainly enough evident, and they must be treated accordingly. Some of them appear to be aseptic, but are not really so, and the proportion in which we may be so sure of it as to fill immediately is rather small.

The immediate filling of teeth with abscesses having fistulous openings relates to the disinfection of the pulp chamber and canals, as in all other cases involving sepsis, and to the convenience of using the root canals as channels for the conveyance of force or pressure for the evacuation of the abscess cavities, or the introduction of medicines.

There are many teeth in which the foramina are so small as to be useless for these purposes, and they may as well be closed as soon as disinfected, but there are many others in which the root canal and the fistula furnish openings at both ends of the abscess cavity and make it possible to give them much more thorough and successful treatment than would be the case if the canals were closed. This is so much so that a very large proportion of them will get well after one thorough treatment, and many operators feel so sure of that as to fill them at once; but some of them will not get well after one treatment, and it is just as easy to find out whether they will before we fill them as afterward.

Immediate root-filling is theoretically possible, and even entirely practicable if circumstances require it, in a very much larger number of cases than those in which it is clinically expedient. Many careful or cautious operators, who can control their patients, will practice it very seldom indeed. Others, more bold, or whose practice may make it more necessary, will do so very often, but all should draw the line, strictly, at those teeth having the entire pulp canals in a septic condition.

Disinfection of teeth is usually considered to relate only, or at least chiefly, to the pulp chambers and canals. Occasional appearances seem to indicate instances in which the dentine itself (the tubuli contents) has become so foul as to require that disinfection reach through its substance. It is usually supposed, I believe, that the tubuli of normal dentine are too small to admit of septic germs, but they certainly do sometimes admit freely the products of decomposition, as is evident by the great change of color. Of course if the dentine is to be disinfected, the time required is likely to be greater than is necessary to disinfect the chamber and canals. Some work lately done by Dr. Black, which I trust we shall hear about in due time, seems to indicate that a very considerable amount of organic matter can readily be dried out of an extracted tooth and replaced by water. That diffusibility and displacement are practicable to some extent between the foul contents of dentinal tubuli and fluids and medicines that can be placed in the pulp chamber, is evident from what we often accomplish in the bleaching of teeth. Whether, with the tooth in the mouth, the tubuli contents can be removed to any great extent by drying may be doubtful. There is little doubt that the dentine will readily absorb something else to take the place of whatever portion of the tubuli contents *can* be dried out of them. Clincally it is evident that in most cases we need not give ourselves very much concern about the tubuli contents beyond what is accomplished by the disinfectants used with direct reference to the pulp chamber and canals. Of course such medicines must not be coagulants, or we cannot expect them to accomplish *anything* in the disinfection of dentine.

It has occurred to me at the last moment that I might have saved much time by simply warning you of the great difference there is between the great State of Indiana and the equally great State of Illinois. This will more fully appear by a short quotation from a paper and another from remarks in the discussion following it, both by Dr. J. R. Clayton, at the meeting of the Indiana State Society last June.

"For the past three years my practice has been most radically changed, arguing in the case of pulps purposely destroyed and removed that the sooner the parts were turned over to nature for rest and restoration the better; that in case of putrescent pulps, if they were giving no trouble while in the canal none would result when the pulp was removed and the canal cleansed; and furthermore, if the pain had been set up in the peridental membrane the whole cause was in the putrescence of the pulp, and by removing the cause the effect would cease, and now every pulp canal is cleansed, disinfected, dried and filled at the same sitting, and the success attained has been such that no more thought is given to the future of such operations than to the filling of the plainest molar cavity."

In the discussion he said (in reply to a question about drying roots), "The anterior roots of the lower molars and the buccal roots of the upper molars I do not disturb. I make no effort whatever to get into the buccal roots of the upper molars. *I believe I have never seen an abscess on the buccal surface of an upper molar.*" (Italics mine.)

In Indiana, therefore, where there are no abscesses on the buccal roots of upper molars, immediate root-filling appears to be a great success, and may, perhaps, be practiced with impunity. But in Illinois such abscesses are very common, and experience and observation have taught us that immediate root-filling must be practiced sparingly and with good judgment.—*Dental Review.*

PAIN.

BY J. MAIN NICOL, M.R.C.S.

[Read before the Student's Society, Dental Hospital of London.]

WHEN asked by our Secretaries to read a paper before this Society, I felt the honor conferred by the request, great though it was, less than the responsibility it involved, the latter being augmented by the fact that, having during the last fifteen months listened to so many papers full of practical details, the work of my seniors and contemporaries, little of a special character was left me from which to select, and, having nothing original of any moment to communicate, the feeling that a more general and widely-ranging subject might not be unacceptable, coupled with a great personal interest in what I have chosen, and last, but in no sense least, the kindly suggestion of a friend and fellow student, led to my choice of "Pain" for your consideration, knowing, further, that a symptom, the relief of which forms such a large element in our daily work, could not but be of interest to you all. And if, as I fear, you hear much that is not new, or that does not accurately deserve the suffix *algia*, you must pardon me on the ground that the same scene has a very different aspect when viewed from a new standpoint, and that a wide angle lens necessarily includes many peripheral rays which do not properly belong to the landscape. I must also offer some preliminary apology for the incompleteness and fragmentary character of my paper; as it was so obviously impossible to touch, even cursorily, on the whole ground which the title includes, I was compelled to limit myself to those points which struck me as most interesting, and in view of a comparatively small experience, to speak, even on these, suggestively and with some hesitation.

I do not here wish or intend to consider pain in its wider psychological acceptation as the *affective coloring* or *hedonic tone* of our common sensations, nor even in its functional or neuromimetic form, but in its more limited application to any unpleasant sensation, local in origin, construed by the recipient into the expression, "It hurts." Now we are not so strictly trained, as an older generation, to regard every movement or process in nature as intended for a definitely useful purpose, but that there is some sub-conscious desire to find this the case is evidenced by the number of workers endeavoring to find functions for those apparently superfluous organs, the thymus gland, the thyroid body, the hypophysis cerebri, etc., whose utility only appears pathologically in a negative manner, in much the same way as the traditional boy defined salt as "the thing that made potatoes taste nasty when they hadn't any on them"; yet in pain the school of teleologists find an infinitely sounder argument than the disciples of Hahneman in their empirical *ignis fatuus*, "Similia similibus curantur." You all know Hilton's law, "that the skin covering a joint, the muscles moving it, and the articulation itself are all supplied by the same nerve." By this association, a lesion of any one of these various structures is at once followed by a modification of function calculated to diminish the pain, and it is worthy of note that even when pain is unfelt (as in sleep), a diseased or inflamed joint is fixed in that position which would be easiest were the patient conscious. This law is well exemplified in the temporo-mandibular joint, whose nerves are derived from the fifth cranial (auriculo-temporal and masseteric branches), the masticatory muscles receiving their motor stimuli from the same source (deep temporal, pterygoid and masseteric branches), while the sensory branches of the trigeminal nerve almost monopolize the corresponding cutaneous area. And to digress a little from my text, the vascular arrangements exhibit a similar relational distribution; that (at first sight) aberrant branch of the internal maxillary artery, the great meningeal, if examined, will be found to supply and nourish the duro-matral or endosteal covering of those bones, and more richly those parts of them, from which the muscles of mastication arise.

Look for a moment at the teleogical value of pain, as it occurs in connection with the teeth.

The acutely icy pain, which, in irritation of the pulp is often noticed when changes of temperature occur, leads the patient to avoid a repetition of its appearance, and thus the removal of two potent agents in maintaining or increasing the morbid state. Again, in periodontitis, the pain in early stages, although it has the paradoxical effect of causing the patient to bite on the affected tooth, yet always prevents its use in mastication, thus giving the inflamed tissues a much-needed rest.

And, in exposure of the pulp from caries, if of some duration, it is not rare to see an extensive deposit of tartar on the teeth of that side, the result of their disuse, prompted by the salutary pain; that this is responsible for postponing the evil day cannot be doubted, for the usual history of acute inflammation of the pulp is, that while eating, a sudden pain was felt in the tooth, and gradually got worse, culminating in the typical painful sensations associated with the condition.

So that, from our own point of view *qua* the patient, pain acts beneficially by causing a voluntary but half conscious protection of the injured part.

Perhaps a still better illustration of this rest-producing power of pain, and a very apt example of Hilton's law (modified, it is true,) is afforded by the inability to open the jaws associated with, and the result of, difficult eruption of the lower third molar. In this condition the mouth is with difficulty opened a very short distance, and any attempt to increase the interdental space is vigorously opposed by the masticatory group of muscles. In rare cases this opposition is reflex, but, as under an anesthetic, the jaws are usually easily separated it must be believed that the pain, to which during consciousness, opening of the jaw gives rise, is the efficient cause of the trismus. It has been stated that trismus from an erupting wisdom is the mechanical result of inflammatory exudation into the muscles in the neighborhood, more especially the masseter; the chief arguments in its favor being—

1. That clinical observation does not show a contracted masseter.

2. That the degree of trismus diminishes as the inflammatory symptoms subside.

But, although this infiltration is in a large number of cases beyond cavil, I wish to show that it affects the fixation of the part largely, if not entirely through 'the medium of pain, on the following grounds:

(a) Experimental inflammation of striped muscle does not prevent its relaxation.

(b) Under an anesthetic, as a rule, the mouth is readily opened.

(c) Although the masseter muscle is not tense when examined at rest, this is easily explained by the fact that the pressure on the inflamed tissues—the result of such a contraction—would be painful, and thus avoided by the patient, and besides, the muscle does become tense if any attempt to separate the jaws be made during consciousness.

(d) That the trismus subsides in proportion with the inflammatory symptoms is distinctly in favor of the pain view, as this last symptom equally subsides with the lessened inflammation.

The value of pain, *quá* the surgeon, is not less marked as an aid to diagnosis, and a limiting guide in treatment.

In diagnosis it assumes two forms, being either a *symptom* or a *sign*, and the latter is by far the more valuable.

As a *symptom*, it embodies the patient's sensations, which may be misleading, as they may be referred to a seat far distant from their origin, which indeed may be central.

As a *sign*, it is elicited by percussion, by pressure, by means of heated burnishers, and the hot or cold blast; it here finds an analogue in the tenderness of the general surgeon, and is used in the diagnosis of irritation, or chronic inflammation of the pulp, peridontitis, death of the pulp in a tooth otherwise sound, etc.

In treatment it is always elicited, and in consequence always a sign; and its uses in preventing accidental opening of the pulp-cavity, drilling through the apex or side of a root, inserting a filling with too high a degree of thermal conductivity, are sufficiently obvious.

Pain varies greatly in severity, such differences being traceable to local and general causes.

Amongst the local factors we must rank as most important the degree of tension and the acuteness of the cause, these two not seldom varying directly as one another.

Concerning the latter, the marked difference between the pain of acute and that of chronic pulpar inflammation, and the similar disparity observed in the subjective signs of slow-growing and malignant neoplasms are sufficiently obvious to require no comment.

As to the former—the degree of tension—the marked increase pain when pressure is made on a tooth in an advanced stage of periodontitis, the equally significant relief of pain when an alveolar abscess, perforating the bone, escapes into the yielding soft tissues, and in general surgery the acute throbbing pain of a tensely-distended joint, and the sickening, almost unbearable pain of an acute orchitis are excellent examples, and it may be made an axiom that "the greater the resistance the greater the pain;" further, that tension renders comparatively insensitive structures, as tendon and ligament, exquisitely painful.

The general factors are practically embraced by the patient's constitutional condition and temperament.

The general health acts very noticeably, and obscure, neuralgic pains, apparently causeless—so far as a local examination can give evidence—are, in many individuals, a common symptom of lowered health; indeed, Romberg has somewhat poetically said, "Neuralgia is the prayer of the nerve for healthy blood." Probably such depressed health acts locally, and renders the nerve-endings more susceptible to trival irritation, but it also operates generally, causing the sensorium to magnify its impressions.

And the last factor is the temperament or personal equation, a most difficult and important matter. The most casual observer cannot fail to notice that there may be a wide difference between individuals in their capacity for bearing pain, quite independently of health, and it is essential that the dental surgeons should take cognizance of this, and in all operative procedures, consider it. Unfortunately there are no certain means of diagnosing the hyperæsthetic, and one usually recognizes it only at the first operation. The treatment of this factor by gaining our patient's confidence, and a due exercise of sympathy, is of immense value, for the temperamental condition has power to modify sensations to a quite surprising degree. It is needless for me to say that at Leicester Square, such consideration is always shown, and the operator does not in thinking of the tooth, forget his patient; but one has to be constantly on their guard to prevent this. I cannot emphasize too strongly the necessity for this consideration, as, properly employed, it gives a patient enormous moral courage, enabling him to endure more painful—often a synonym for better—work. Such a feeling for the suffering individual is, I think, best insured, if the operator pictures his patient's mental attitude accurately, and is impressed if he submits himself to some of the treatment he so freely administers to others. To him, the one-sided *face grippe* of Laennec, presented by the suffering man after forty-eight hours' toothache conveys more than the fact that there is an inflamed pulp and alveolar abscess, and leads to corresponding gentleness in treatment. And I cannot too strongly express my opinion that a man who, while making an exposure, or excavating sensitive dentine, laughs and jokes with another student lolling over his chair, is incapable of assuming a sympathetic manner with another patient; for these things are part of the man himself and represent, so to speak, his creed and practice " up to date." Of course, I am not now speaking of our own Hospital, and so really some apology is necessary for introducing it. This consideration for the patient's feelings must not, however, lead to lack of thoroughness, but the two must be carefully balanced, and the final goal be " Wherever possible the best, and when impossible, not what one would, but what one can."

Concerning the general principles involved in the treatment of pain, I will be very brief, as I wish to refer to several special conditions. The principles consist in—

(1) The removal of the cause, where this is possible;

(2) The diminution of the peripheral stimulus by—

  (*a*) The use of anodynes locally;

  (*b*) The relief of tension, where it exists.

(3) The diminution of the central impression by—

  (*a*), Improvement of patient's general health, though this, as a rule, scarcely comes within the dental surgeon's province.

  (*b*) Moral suasion and personal influence, particularly applicable to painful sensations analogous with tenderness, and produced by surgeon's manipulations. In this connection, the truth of an axiom, from the old Philosopher and Emperor, Marcus Aurelius, is very evident, for he says (M. Aurelius, Med. Lib. IV, No. 7): "Do not suppose you are hurt, and your complaint ceases. Cease your complaint and you are not hurt."

And now to deal with a few specific painful conditions—and here I should like to suggest to my fellow-students a more careful observation and noting of the results of systematically carried out methods of treatment. Sydenham was wont to say, "Ars tota medecinæ est in observationibus," and although this does not hold as regards the adjective *tota* in the stepdaughter (and I use the prefix advisedly) dental surgery, yet its importance is great, and in the present instance, for more accurate knowledge, vital.

And first, of periodontitis: for the relief of the dull, constant aching, a comparatively fresh aconite leaf is most useful, I think; its value is but little known, but its advantage over the tincture in greater strength and persistence are evident, and in many cases, and in my own person I have found it alleviate pain greatly. The inflamed gum being dried, and a piece of leaf of suitable size cut, the latter is simply pressed into place, where, as a rule, it will remain as long as a capsicum plaster. Leaves may be kept moist by the use of a tin box, with well-fitting lid, in the interior of which is a damp sponge. In drilling into a tooth, the pulp of which is gangrenous, the pain caused by the vibratile pressure may be much lessened by passing a clove-hitch of silk round the cervix and keeping up strong lateral tension during the operation. When the adjoining teeth can be utilized, osteoplastic or plaster of Paris, or modeling composition may also be employed to splint the affected tooth. These methods of steadying a tooth must be old to many of you, and yet I have rarely seen men employing them at our hospital, at least for this special purpose. The rapid application of a silk ligature recommends the first method more than the remainder.

In pyorrhœa alveolaris, a common symptom of which the patient complains, is an itching sensation, short of pain, provoking a desire to rub the gums frequently; this pruritus, probably the result of the chronic gingivitis, has an excellent homologue in the intense itching of the common chronic superficial dermatitis, called eczema. And from the readiness with which the latter disappears under the use of unguents containing 5 to 10 per cent. of one of the essential oils (notably that of peppermint), I would suggest the employment of one of these, either in a mouth wash or tooth-brush tincture, or as a constituent of the medicament used in the treatment of the pockets. The essential oil contained in acid sulphuricum aromaticum is too small in amount to be a fair test. But I am anxious to hear from others, their views as to this symptom and its treatment.

Another cause of pain, for drawing my attention to which I am indebted to one of our senior staff, is a chronic inflammation of the pulp, arising independently of caries, in association with pyorrhœa alveolaris. The patient complains of sensitiveness to heat and cold in the molar region, and is usually unable to localize it with accuracy; on inspection, there may, or may not be, caries, but as the particular disease in question is quite independent of decay, we may for the present regard it as non-existent. On testing the teeth with the hot blast (and this is more efficient than a heated burnisher), one of the molars, most usually the second, is found acutely sensitive, and if care be taken to limit the area covered by the hot blast, the pain may be localized to one side of the tooth, more commonly the buccal, while the lingual side is unaffected by thermal changes. If such a tooth be extracted and split open it will be found that the palatine root contains the putrid sphacelus of a gangrenous pulp, while, more towards the crown will be found a bead of pus; the remainder of the pulp cavity and the buccal root-canals are occupied by pulp, which, from its hyper-sensitiveness above described, and its now obvious hyperæmia, is apparently chronically inflamed. A zone of intense redness, microscopically indistinguishable from granulation tissue, bounds the inflamed pulp, and separates it from the pus. Probably the pathology was as follows: Gangrene of the palatine radicle of the pulp occurred, being either primary and a concomitant of, or secondary and denteropathic to, the periosteal inflammation of the more general pyorrhœa (whether this gangrene has a fraternal or filial relationship to the chronic periostitis can only be decided by a more accurate knowledge of the pathology of Rigg's disease); the sphacelus, acting as an irritant, set up a greater or less degree of chronic pulpar inflammation, aggravated, no doubt, by the impaired blood supply, which, in the palatine radicle, was diminished to such an extent as to cause death. A line of separation formed, as in gangrene elsewhere, at the expense of the living tissue, and the still remaining dead tissue causes a slowly progressive ulceration—for that is the actual fact—of the remaining pulp, the pus formed being the discharge from the ulcer.

The treatment of these cases would reasonably be on the following lines: If the tooth be hopelessly loose, it should be extracted. If the tooth be firm, or only slightly loose, or even very loose, and yet of value as a support to a denture, or for mastication, it should be retained and treated by devitalizing and extirpating the pulp. This is best effected by cutting a shallow retentive cavity in that side of the tooth insensitive to heat; a sharp rose-head may then be made to enter the pulp-cavity, probably in the region where pus is present, and so cause no pain; should, however, the inflamed pulp be wounded, the previous preparation of the cavity prevents a further use of the engine, of which a sensitive patient would be suspicious. The subsequent treatment by means of a dressing of arsenious acid, etc., is too well known to require description.

Since my attention was called to it, five instances of this partial gangrene of the pulp have come under my notice. In one of these the tooth was extracted, and precisely the condition I have described found. In the remaining four, the twelfth-year molar was in each the affected tooth, and in each the buccal wall was the sensitive one. In drilling through the lingual wall sensitive pulp was in one case encountered, and I then felt the desirability of previously preparing a cavity to hold the arsenic dressing and gutta-percha. All did well, at least, shall I say, as long as they were followed, in each case several weeks.

Speaking of exposures, especially when the pulp is acutely inflamed, the removal of the leathery dentine is apt to be a very painful and frequently is a lengthy process, and I have for some time adopted a more rapid procedure. In a case where extensive caries, or the symptoms of acute pulpar inflammation are present, or where pain on pressure by means of wool in the cavity, acute sensitiveness to heat and cold, slight periostitis and a history of sudden pain during eating, or of recurrent acute attacks with nocturnal exacerbations, indicate that the carious process has opened the pulp-cavity, I proceed in this manner (and am prepared for very adverse criticism on what is here advocated): First, cleaning the margins of the cavity and rendering it approximately retentive; remove any obviously loose carious *debris*, and then instructing your patient that he (or she) must bear a sharp but quite momentary pain, with a sharp rose-head bur rapidly rotating, open the pulp-chamber. If the patient objects to bear a sudden momentary pain, nitrous oxide may be given, but is not often necessary. In acute inflammation of the pulp, the wide opening so completely relieves tension that it is usual to find an immediate cessation of toothache, and the gratitude of the patient for its disappearance quite outweighs the unpleasantness of making the exposure.

The advantages of this method are obviously many:

1. Its rapidity *qua* the operator.
2. Its rapidity *qua* the patient, shorter duration of pain.
3. Its large size, giving complete relief to tension, affording a ready application and a rapid absorption of the arsenious acid, so that patients rarely complain of pain during the death of the pulp.

Of its disadvantages I am fully aware, but would prefer someone else to take them up, that I may try and meet them.

In excavating the permanent teeth of children under twelve years of age, it not seldom occurs that one or two intensely painful spots reveal themselves, without any sign of exposure of the pulp as indicated by redness or bleeding; this may also occur in the temporary teeth, but in them, so far as my experience goes, it is rare, sensitiveness of the dentine, when present, being more diffused, and any sharply localized sensitiveness being an undoubted exposure. Now, I am led to believe that in some cases at least, if not in many, these little sensitive points are really hair-like ramuscles of pulp, so fine as to be devoid, or almost so, of blood-vessels, and consequently not revealing their nature by the more classical signs. An interesting case tends rather to confirm this view. A shallow, circular cavity in the labial wall of an upper incisor in a boy of ten, when excavated, presented one of these points, and I would emphasize the fact that the surface of dentine appeared perfectly uniform, and no one inspecting the cavity could distinguish one part of it as different in appearance from another. A minute drop of carbolic acid introduced on a plugger, accidentally retained its spheroidal form, and I noticed that the light reflected from its surface moved rythmically; the drop was in fact pulsating. On wiping out the cavity, no sign of such pulsation could be seen, and yet one must believe that the drop of carbolic acid was in actual communication with the pulp-chamber. This case was treated by capping with zinc oxysulphate, and did very well, and such treatment seems to be the most natural and scientific, for the conditions are peculiarly favorable to the formation of secondary dentine, as, from the absence of hemorrhage, or sign of redness, it is fair to suppose that the cellular periphery of the pulp is comparatively intact, although, if the "bioplasson" structure described by Messrs. Boedecker & Heitzman are correct, the integrity of the odontoblast cells should not be necessary.

In the treatment of root-canals, from which a recently living pulp has been extracted, the bristle occasionally detects a tender spot in the wall of the canal, and that is not due to retention of the apical part of the pulp is shown by the fact that on pushing the bristle further, the tender spot is passed. The cause of this sensitiveness is very obscure; it has been suggested to me that it may be due to one or two odontoblast cells clinging in a group to the wall, but it must be remembered that they have now lost all communication with nervous tissue except through the medium of their fibrils, which communicate with the ramifying processes of the cement corpuscles, and considering that the dentinal fibrils possess the power of receiving and transmitting painful stimuli, it seems unnecessary to imagine a group of retained odontoblasts. That this communication between the periosteum and the dentinal fibrils through the medium of the cementum is sufficient in rare cases to effect the transmission of painful impulses was rendered evident by a case occurring to me about a month ago. An erosion cavity typically "file-cut" into the enamel and dentine of a second lower bicuspid, was extremely sensitive, and yet the tooth was pulpless, for I passed a bristle quite to the apex of the root, and suspecting a second root containing live pulp, heated up the tooth, but without effect. A similar case is cited by Salter in his "Dental Surgery and Pathology." Sensitiveness, the result of exposure of the cementum from retraction of the gum, must not be confounded with this. Another possible cause for this condition is a vasculo-nervous canal going laterally to the periosteum.

The uncertainty of the cause is increased by the comparative rarity with which such a tooth is removed and examined; I have noticed it in some five or six cases, and in all the pulp had been devitalized by arsenic. I have been in the habit of filling the pulp-chamber with oxyphosphate, after merely drying the root-canal, and never found any trouble follow.

I have to acknowledge the kindness of our Senior Secretary in showing me an upper bicuspid removed for pain on pressure, as during mastication, the pain being of a pricking character, and independent, I understand, of any periostitis; I regret that I do not remember whether the tooth was carious or not, but if it was, the decay was light; the remarkable feature was that its single root, which was of quite unusual length and tortuous, terminated in a very sharp point. It seems reasonable to suppose that the length of the root and its consequently more gradual taper rendering the socket less conical, allowed a kind of piston movement in the tooth, so that each impact of mastication drove the sharp point into the osseous tissue of the jaw, causing the significant pain. Could this condition have been recognized prior to extraction, a matter of grave doubt, the treatment naturally suggesting itself would be excision of the apex, after cutting through or trephining the alveolar wall; but, even if the diagnosis were certain, the operation would be as much the converse, from the difficulty of ascertaining the precise position of the apex; in this instance, the root was so irregularly curved that the finding of its apex would have been quite a problem in the mathematical theory of probability.

One more cause of pain, with which I am going to bore you, and I have done. I refer to exostosis or hyperostosis of the roots of teeth. The pain is sometimes suggestive of a periosteal, sometimes of a pulpar lesion. After extracting exostosed teeth, dentinal concretions in the pulp-cavity are sometimes found, but as these occur in perfectly sound teeth, with no history of pain, and are often discovered accidentally on splitting open a tooth removed for purposes of regulation, their presence has no influence either way; a theory commonly accepted is that the compression of the alveolus by the increased size of the root, and the consequent injury to its nerves, is the potent factor. Against this it may be urged that when the alveolar bone is expanded or compressed by the growth of a tumor or cyst, the pain is comparatively slight, as compared with that in exostosis, and when the relative sizes are compared the disparity is enormous. A more credible hypothesis would seem to be that the irritated periosteum—for exostosis is usually regarded as a hyperplastic or osteogenetic periodontitis—has in the stimuli conveyed to its nerve-endings an efficient cause of pain. But to prove the truth or otherwise of the belief in alveolar expansion and compression, would not some experimental work of the nature of linear osteotomy, say for instance, cutting through or trephining through the alveolar plate—outer or inner, whichever were thinner—be of value? In condensing or sclerosing osteitis in the larger bones, similar operations on a larger scale are attended with much relief, and treatment at present, by the internal adminstration of drugs, and local counter-irritation usually produces so little result that extraction follows. I would be very glad if any one could tell me whether in a dead tooth removed for pain independent of septic periodontitis, or alveolar abcess, the roots were found exostosed.

And now I have done, but to those of my fellow students who are interested a little beyond our own sphere, in the subject of pain, may I recommend Mr. Bryants' "Hunterian

Lectures on Tension, Inflammation of Bone, and Head Injuries," and those two surgical classics, Sir Charles Bell's "Anatomy of Expression," and Mr. John Hilton's "Rest and Pain." And, as it must happen to some of us, that after qualifying, we have for some time to enjoy the prospect rather than the fruition of professional success, might I suggest that the causation and pathology of sensitiveness in dentine afford a wide field for original research, and the man who conquers this *bête noir* of the dental surgeon will earn for himself a well-deserved fame in the professional world.

Again, I must ask pardon, as I have already once done, for the fact that I have often appeared to be stating as a somewhat novel, things which are well-known and almost commonplace. It was impossible from the nature of the subject to avoid this, and my ambition is amply satisfied, if I have been able in some measure to clear up the uncertain, to rescue the falsely dogmatic from a parasitical veracity, and to emphasize what is true: There now only remains the pleasant duty of thanking you for the kindly attention with which you have honored me.—*Dental Record.*

REPORTS OF SOCIETY MEETINGS.

ARIZONA DENTAL ASSOCIATION.

ON March 27, 1894, the Arizona Dental Association was formed with a membership of sixteen. Officers are:

Dr. L. H. Goodrich, of Phœnix	President
Dr. J. M. Marshall, of Flagstaff	Vice President
H. J. Jessop, of Phœnix	Secretary and Treasurer

Tucson will be the next place of meeting, on October 24, 1894, at which time the examination of applicants for license to practice dentistry in Arizona will also be held.

OAKLAND DENTAL CLUB.

THE Oakland Dental Club held its regular monthly meeting at the office of Dr. S. A. Hackett, Tuesday evening, March

6, 1894. Meeting was called to order with President Russell H. Cool in the chair.

Dr. S. A. Hackett read a paper entitled "Hypnotism in Dentistry."

The April meeting will be held at the office of Dr. Cecil Corwin, and Dr. C. L. Goddard will read a paper on Orthodontia.

H. D. BOYES, *Secretary.*

SAN FRANCISCO DENTAL ASSOCIATION.

THE San Francisco Dental Association held its regular monthly meeting in Mystic Hall, Monday, March 12, 1894, President C. L. Goddard in the chair.

The following resolution, amending Section 2 of the By-laws of the Association, introduced by Dr. Thomas Morffew, President of the State Board of Dental Examiners, was again brought up for action and elected unanimously:

Resolved, That Section 2 of the By-laws of the Association be amended to read that all applicants for active membership of this society shall be legal practitioners in compliance with the laws of the State of California.

Dr. John Rabe of Oakland, otherwise known as the "Frisco Tramp," addressed the society upon the subject of his travels through the South Sea Islands. The Doctor presented a number of exceedingly interesting casts and skulls for the inspection of those present.

MIDWINTER FAIR DENTAL CONGRESS.

THE General Committee of the Midwinter Fair Dental Congress met in Parlor A, Palace Hotel, Thursday evening, March 15, 1894.

The Executive Committee, having been instructed to revise the Constitution, presented its report, and, after the usual suggestions and alterations, the following was adopted as the revised

CONSTITUTION OF THE MIDWINTER FAIR DENTAL CONGRESS.

ARTICLE I.

This convention shall be known as the MIDWINTER FAIR DENTAL CONGRESS.

ARTICLE II.

The place of meeting shall be San Francisco, Cal.

ARTICLE III.

Time of meeting, Monday, June 11th, 1894, to continue in session five (5) days.

ARTICLE IV.

Object: The bringing together, for professional, scientific and social purposes the dentists of the Pacific Slope and the world.

ARTICLE V.

The fee for active membership shall be five (5) dollars.

Which fee shall entitle the member to full membership and a copy of the Transactions.

ARTICLE VI.

SECTION I. The officers of the General Committee shall consist of President, first and second Vice-Presidents, Secretary, Assistant Secretary, Corresponding Secretary and Treasurer.

SEC. 2. Officers of the Congress shall be elected by ballot at its first session, on the 11th of June next, and shall consist of President, one or more Vice-Presidents, Secretary, Assistant Secretary and Corresponding Secretary, whose duties shall end with the five days session of the Congress, and in nowise interfere with the duties of the officers or committees of the temporary organization, which organization shall exist until all work pertaining to the Dental Congress shall have been completed.

ARTICLE VII.

The General Committee shall hold its meetings at such times and places as may be appointed by the Chair.

ARTICLE VIII.

It shall be the duty of the President of the General Committee to act as chairman of all meetings of the General Committee.

He shall be chief executive officer and *ex-officio* member of all committees. He shall have the power to call a meeting upon the advice of three members of the committee.

ARTICLE IX.

SECTION 1. It shall be the duty of the Secretary of the General Committee to keep a record of all proceedings.

To receive and put in proper form for use of this Committee a synopsis of the work accomplished from time to time, by each of the special committees.

To receive and receipt for all moneys, and pay the same to the Treasurer, who shall give a receipt therefor.

SEC. 2. The Corresponding Secretary shall attend to all correspondence of the General Committee, and notify officers and members of committees of time and place of meetings.

ARTICLE X.

It shall be the duty of the Treasurer to receive from the Secretary, to receipt for and have in charge all moneys for, or belonging to the Midwinter Fair Dental Congress, and to pay out the same on the order of the Secretary and President, all bills or demands having been passed upon by the Executive Committee.

ARTICLE XI.

The General Committee shall have and exercise supreme control and direction in all matters pertaining to the organization and work.

ARTICLE XII.

Nine members shall constitute a quorum for transaction of business.

ARTICLE XIII.

These rules may be amended at any regular meeting of the General Committee by a two-third vote of those present.

ARTICLE XIV.

The Committees shall be called

Executive,
Programme,
Finance,
Membership,
Reception,
Local Arrangement,
Editorial,
Transportation,
Auditing,
Advisory,
Association Day,
Invitation,
Publication,
Dental Club.

DUTIES OF COMMITTEES.

Executive Committee.—This committee shall constitute a court for the trial of any member charged with the violation of the Code of Dental Ethics.

Examine the financial accounts of the Treasurer, and the Finance Committee, and transact such other business as may be committed to them by the General Committee.

Programme Committee.—It shall be the duty of this Committee to receive all papers intended to be read before the Congress and determine such as may be acceptable. Arrange the time for entertainments, clinics or reading of papers, and prepare the daily programme.

Finance Committee.—This committe is authorized to guarantee to each member a copy of the Transactions; to make collections of money and deliver the same to the Secretary.

Membership Ship.—The duties of this Committee shall be to pass upon all applications for membership.

They are authorized to issue a certificate of membership upon the payment of five dollars ($5), and to pay the said amount to the Secretary.

Reception Committee.—It is expected that this Committee will take charge of the comfort of all members of the Congress, and especially those members and strangers from other States.

Local Arrangement Committee.—It shall be duty of this Committee to secure a place for the various meetings of the Congress and exhibits.

Editorial Committee.—The duties of this Committee shall be to edit and revise all papers, essays and dicussions, also other documents offered to the Congress during its meetings, and to publish the same under the title of "Transactions of the Midwinter Fair Dental Congress."

Transportation Committee.—The duties of this Committee shall be to call on the railroad and steamship companies, and obtain the best rates possible for the members of this Congress, both in this and other States.

Advisory Committee.—This Committee shall consist of three, whose duty it shall be to advise with any and all committees and officers upon request.

Association Day Committee.—The duties of this Committee shall be to see to the proper entertainment of the Congress on "Association Day."

Invitation Committee.—The duties of this Committee shall be to invite such scientific persons, members or non-members of the profession, who by their recognized attainments in special departments of science, would add to the interest of the meetings.

They shall furnish the Committee on Membership with a list of the names and residence of those invited.

Publication Committee.—It shall be the duty of this Committee to arrange all matter for the public press and to the printing and issuing of circulars, notices or any other matter necessary to be printed. All circulars issued by any committee must be sent to all members of the General Committee.

The Dental Club Committee shall provide apartments in some convenient place, furnished to serve as headquarters and place of rendezvous for the members of the Congress and of the Oral Section of the American Medical Association.

And shall also furnish paper for correspondence, and suitable cheer for the entertainment and comfort of its members.

Adopted March 5, 1894.

CONSTITUTION OF THE MIDWINTER FAIR DENTAL CLUB.

PREAMBLE.

As the fee imposed upon the members of the Midwinter Fair Dental Congress is hardly adequate to meet its expenses, the Dental Club Committees instituted by the Congress is forced to find the ways and means to fulfill the purpose of its creation from sources independent of the funds of the Congress, and as separate rules for its guidance have to be formed, and a separate fund for its existence and purpose has to be gathered and expended, it has been deemed expedient by your committee to organize itself into a distinct body, with a complete set of officers, constitution and by-laws.

It is, however, to be distinctly understood that in taking this step we do not disassociate ourselves from this body, nor alter our allegiance to it, but meet with you as one of its committees to work with and further the great end of the Congress. In acknowledgment of which we present to you the Constitution we have adopted for your approval and ratification, and to ask your permission for this procedure, and plenipotentiary authority.

NAME.

This organization shall be known as the MIDWINTER FAIR DENTAL CLUB.

OBJECTS.

1. To provide apartments suitably furnished to serve as a headquarters for the members of the Oral Section of the American Medical Association, which will meet in San Francisco on June 5th and continue, during the California Midwinter Fair Dental Congress. These headquarters are to be opened on or before June 1st, furnished with all the necessary paraphernalia for the reception and issuance of correspondence, books for registration, the various journals of the profession, numbers of the daily press, etc., and as a rendezvous for all the members of these two bodies.

2. As a place for entertainment for the members of the Club and their guests.

The government of the Club shall be vested in a directory, consisting of a President, Vice-President, Treasurer, Secretary and Corresponding Secretary. Vacancies in any of the offices shall be filled by the Directory.

MEMBERS.

Members shall be active and honorary. All members of the California Midwinter Fair Dental Congress residing in California shall be eligible to active membership in the Club upon payment of the fee required. Honorary members shall consist of those members of the Congress who are non-residents of the State. Honorary members shall be considered guests of the active members of the Club, and entitled by courtesy to all the privileges of the Club. Honorary members can become active members upon payment of the regular fee. All those having subscribed to the Club by the 15th of April shall be considered charter members. Members of the Midwinter Fair Dental Congress can become active members of the Club by a subscription of not less than five dollars.

President ....W. J. YOUNGER Treasurer...J. A. W. LUNDBORG

Vice-President.RUSSELL H. COOL Secretary.......C. W. HIBBARD

Corresponding Secretary..JOSEPH D. HODGEN

CORRESPONDENCE.

AMERICAN MEDICAL ASSOCIATION.

WHILE San Francisco is a comparatively new city it is not lacking in places of interest to the visitor. About a half mile to the northwest of the city limits nestling in a little valley and surrounded by evergreen trees is the Presidio, the U. S. Army station. A short distance beyond is old Fort Point upon the waters' very edge. The waves of the bay dashing upon its cement abutments are broken into spray and lost upon its walls. McDowell avenue leads from near the fort around the tops of the cliffs overlooking the Golden Gate and the broad expanse of the Pacific Ocean.

Vessels of all nations and descriptions can be seen in the offing or quietly gliding through the waters of the gate.

The Cliff House—a famous resort—is situated upon a promontory directly overlooking the ocean. In the distance on a clear day the Farallone islands—twenty-five miles away—are seen rising abruptly from the water, while less than one hundred yards from where one stands the "Seal Rocks" put up from the waves and the loud barking of the seals and sea-lions upon them tell why they are so named.

Sutro Heights are just above the Cliff House. Here nature and art have so blended their works that the visitor is truly astonished and delighted with what he sees. The Committee of Arrangements are planning an entertainment at this place for the wives and daughters of visiting members to the Association.

All San Francisco is justly proud of the Golden Gate Park. What was once dreary sand dunes, has been transformed into a very garden, flowers bloom throughout the year, and the grasses are always green. Broad avenues wind in and out past the conservatory, the deer paddock, around the base of Strawberry Hill and on to the ocean beach.

The California Midwinter Fair is being held in the Park at the base of Strawberry Hill, and ocupies a space many acres in extent. This fair has an individuality peculiarly its own, and offers much of interest to every visitor.

The Committee of Arrangements has worked indefatigably on the matter of transportation rates, trying to get a round trip for a single fare.

By advices of T. H. Goodman, General Passenger Agent of the Southern Pacific Company, who furnished addresses, we sent out circulars to agents of all roads interested in the matter. About one-half of those replying favored our petition, and promised to advocate it before their respective associations, through which all such matters must be arranged. The following communication from Mr. Goodman places the matter as it now stands, in a clear light:

SAN FRANCISCO, Mar. 16, 1894.

Dr. R. H. Plummer, Chairman Committee of Arrangements, A. M. A., 652 Mission St., San Francisco.

DEAR SIR: This morning's mail brings us your yesterday's letter, handing for our perusal three letters from Eastern railway officials. Having read the letters you sent we return them herein, and beg to emphasize our previous statements to you in person and by letter that the trans-continental roads have virtually done what you ask—namely, accorded a one-way rate. In other words, the rate for a thirty-day ticket from Missouri-River points to San Francisco is $60. Excursion (that is round-trip) tickets, Missouri-River points to San Francisco and return, are being sold to-day at a rate of $65.50. Such tickets require the going trip to be made within fifteen days from date of sale, and the return trip within fifteen days after the day upon which the ticket is signed here in presence of a railroad agent, but in no event later than July 15th next.

We have told you that within the State of California we ignore this fifteen-day limit on both going and returning trips; in other words, that the holders of the tickets are at liberty to move at will within the State of California within the life of the ticket, and that the fifteen-day limit returning is not enforced west of our terminals at Portland, Ogden and El Paso.

You have asked our permission to state positively that these Midwinter Fair rates would be in force at the time attendants at your convention will want to move westward. We have replied that the traffic is west-bound traffic, and that we do not control the matter. You will doubtless, however, recollect our telling you that this rate would, in all probability, hold until after that period. We gave you our reason for that statement, namely, that one of the roads had announced that it would continue the sales up to June 30th.

We appreciate your desire for an authoritative statement in this regard. As we cannot make it, we will write you that we feel you are quite safe in stating the fact that such rates have been announced, and that the sale would continue until that date.

We beg to again call your attention to one point which is quite material in this matter. The trans-continental roads having virtually done what you asked, you should bring all the influence to bear that can upon the roads east of the trans-continental roads. Those roads are for the most part the ones forming the Western Passenger Association, the Central Traffic Association and the Trunk-Line Association. The Western Passenger Association roads lie between the Missouri River and Chicago and St. Louis. You should go to them for a rate similar to our Midwinter Fair rate. They tell you their rate will be $20, Chicago to Missouri River and back, and $12, St. Louis to Missouri River and back. As the single-trip rate, Chicago to Missouri River, is $12.50, and from St. Louis, $7.50, you will see that their rates are not reduced nearly as much as the trans-continental road rates. Can you not through some of your profession at Chicago approach the General Passenger Agents of the lines leading from Chicago whose names we have given you? We think they will appreciate the importance of the occasion. One of our assistants has in hand the matter of reduced rates locally, and you will be shortly advised.

Respectfully yours, T. H. GOODMAN.

From the foregoing communication it will appear that, while we have not been wholly successful, if the roads between the Missouri river and Chicago and between Chicago and Atlantic points where local travel far exceeds that over the Rocky Mountains, will give the same reductions as the roads from the Missouri River points to San Francisco, we will practically have a single fare for a round trip. Cannot the profession in the East, by united efforts, secure these concessions? The time is growing short, and chairmen of the several sections should send in their reports, etc., for insertion in the programme.

R. H. PLUMMER, Chairman.

NOTICES.

BOOK NOTICE.

Dental Records.—A book prepared by Dr. Herbert C. Miller, of Portland, Oregon, for the recording of operations performed by the dentist upon the patient. There is a complete and perfect diagram of all the teeth, both temporary and permanent, showing all the crown surfaces and the roots, together with rulings for dates, filling materials, etc. A record and ledger in one.

KALEIDOSCOPIC.

The Ohio College of Dental Surgery held its forty-eighth annual commencement at the Odeon, Tuesday evening, March 27, 1894. Medal for best general examination, W. C. Elifritz, Ohio; for operative attainments, T. I. Way, Ohio; for prosthetic attainments, J. A. Auld, Michigan. Number of matriculates, 151.

GRADUATES.—Charles Verey Alsop, Kentucky; John Allen Auld, Michigan; Edward Grove Barnett, Charlie Frederick Bauer, Fred. Ward Brammer, Daniel Harrison Collette, Ohio; Samuel Robert Collier, Kentucky; Frank R. Cunningham, California; Will De Zoete, Michigan; William Charles Elifritz, Will A. Gregg, Charles L. Guthrie, Horace Greeley Hamilton, Ohio; George Robert Jenkins, West Virginia; Champin Frank Lauderdale, Lewis Edwin LePage, William Frederick Lohaas, Ohio; Josiah Mann, New York; Austin Freeland Merrell, Maine; William Franklin Peebles, Ohio; Guy Ballard Saxton, Kansas; Herman Schwartz, John Marshall Scott, David Andrew Smith, Ohio; Richard Storey, Minnesota; William Jelley Sullivan, Indiana; Edward M. Talbot, Iowa; Arthur Lincoln Teeters, Henry Champlain Taylor, Lawrence Paul Vandervoort, Thaddeus Selby Ward, Ohio; Will Lewis Whipple, Minnesota; T. Irving Way, Herman Henry Zumstein, Ohio.

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ORIGINAL COMMUNICATIONS.

ASSOCIATION AND IMITATION.

BY DR. WALTER F. LEWIS, OAKLAND.

[Read before the San Francisco Dental Association.]

MR. PRESIDENT AND GENTLEMEN: May I hope that you will kindly grant me your indulgence if I depart somewhat from the conventional or usual form which characterize papers upon occasions such as bring us together to-night, and, in the few moments which I shall claim your attention, suggest some thoughts bearing upon the value of association and the power of imitation as applied to our own profession. While it is doubtful if there can be much said that is new on the subject of the value of societies, particularly dental societies, and while any emphasis placed upon their importance may seem superfluous and unnecessary at this time, yet that is just the purpose and plan of this paper. In a period of more than twenty-five years, during which time I have been constantly connected with organizations of the profession, I have been impressed with the idea that many do not understand the philosophy which underlies their existence, and hence fail to get much farther in their estimate of them than simple meetings or mere assemblies. Then let us see how important is the law of association in its broadest sense, and apply it more specifically as it is

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NOTE.—The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in this country.

related to our profession. That it is a law almost fundamental in its influence needs hardly to be iterated here, for it is a patent fact that our great America has become a nation of society organizations, in religion, politics, art, music and science; the latter, which has a goodly show, is a broad and comprehensive term, the horizon of which is scarcely bounded, and which touches our civilization in every phase of its natural life, so that in every department of science where men are seeking after truth, either in unraveling the mysteries of disease, originating new methods and devices, or making a new application of old principles, we have these societies which are the mainsprings of thought—in fact, they are the golden threads of progress which run through the entire fabric of our civilization. Men who are pursuing a common calling, and who meet together month after month, or year after year, in the interest of that vocation, ought to have enlarged views of its importance; ought to live above the ruts, the fogs, and the shadows which are the inevitable results of isolation. Any man who pursues day after day, month after month, and year after year the monotonous routine of his work without coming in contact with his fellows, will, of necessity, become narrow and circumscribed in his thinking and method of work. So, if we are wont to think sometimes our meetings are perfunctory, or are given up to the discussion of details which seem to be dry and monotonous, let us remember that it is these same trivial details and commonplaces that are often most useful. Many times in our daily experience we are confronted with obstacles which are barriers to our greater success. It is then, if we have utilized these seemingly trivial, unimportant ideas and suggestions, and are able to transmute them into daily practice, that we may rise above them and be enabled to produce the best possible results; and in this relation is association especially valuable, for as "iron sharpeneth iron," so will our professional minds be sharpened and developed by repeated contact with the best expression of advanced thought and mechanical skill. It has been well said "as where the most fuel the fire is hottest," so where the atmosphere is most redolent of truth, and facts, principles and methods, the most rapid and best expressive advancement will be; so we may not be only receivers but contributors as the fruit of association.

There is another feature of value in association, viz.: that it begets within us a broader charity which enables us to overlook failures and commend success, to judge operations not always by present appearance, but by possible conditions that may have existed at the time they were performed, or measuring them by our estimate of the man, and of the motives that dominate him, with which we have become familiar by personal and professional contact. Coupled with the power of association and closely allied to it is a cosmic force—imitation. These two are joined together by a bond of inseparable union, thus forming a broad stream at whose fountain-head we may all drink. That we are all imitators is a fact so apparent that it needs no argument. There is very little of originality in our lives, taken in any aspect, and I doubt very much if there is a man in this room to-night who performs an operation or uses a mechanical device that is wholly original with himself. If it should seem to possess any merit of original discovery, it will, in all probability, upon investigation, be found to hinge upon some other operation or method in such an unmistakable way that the claim of originality is obscured or wholly lost in the presence of the principle from which the thought had its birth. "It is by imitation far more than precept that we learn everything, and what we learn thus we acquire not only more effectually but more pleasantly. This forms our manners, our opinions, our lives. It is one of the strongest links of society, it is a species of mutual compliance which all men yield to each other without constraint and which is extremely flattering to all." Therefore, the more we come into touch with the aggressive forces of our profession, the more will we imitate, not being content to simply imitate, but to imitate and excel. Never before in the history of our profession has there been so much earnest and conscientious thought applied to every phase of it. Dentistry means more to-day than simply the relation of gold, amalgam, porcelain and rubber to the mouth. It means an intelligent apprehension of pathological conditions; the power to discriminate between health and disease. An ability to remedy functional derangement, and to restore to usefulness organs which have seemingly become valueless to their possessor. Curiously inwrought with the very fiber of our being is the element of unrest; that which we have accomplished to-day, and which seemed to satisfy will not suffice for to-morrow. This same element is constantly pushing us forward to greater conquests, ever opening to our gaze unexplored fields of rarest beauty, quietly touching the flanks of our ambition with the spur of hope, carrying us farther and farther into the ever-widening current, which brings us at last into the ocean of success. Now then, if association and imitation, the Siamese twins of this brief paper, should have enlarged your views in the least as to the importance of dental societies, and particularly the San Francisco Dental Society (may it ever prosper) or have stimulated your ambition to achieve greater success, we commend them to your care as a valuable couple, and taking "Perseverance as our bosom friend, Experience as a wise counsellor, Caution as our elder brother, and Hope as our guardian," Genius will ever press forward into all the avenues of progress, satisfied with nothing short of the highest attainable skill that will surely come as the fruit of patient study and labor.

TRANSLATIONS.

DENTAL AFFECTIONS DURING THE COURSE OF TABES.

BY DRS. LEMARIÉ AND ALBERT BERNARD, PARIS,
IN "L'ODONTOLOGIE."

[Translated by Louis Brun, B. S., San Francisco.]

WE propose to entertain you briefly to-day on the affections of the teeth that may be produced by "locomotor ataxia" (tabes).

It is an admitted fact that affections of the nervous system can in their evolutions affect the nutrition of the teeth. The Hon. M. Poinsot, expert in nervous affections, will say that he has been able to discover in his practice at the Asylum of St. Anne, that the different forms of mental alienation stamp the teeth with particular marks of degeneration.

You know that tabes is one of the medullary affections, which to-day is very well known and defined. The incessant investigations of the school of the Salpêtriere for the last ten years have singularly enlightened us in the classification of this disease; the researches of Charcot, Vulpian, Brissaud, Marie, Dejérine—not to mention investigators of other nations than France—have demonstrated that in its merciless march this affection spares no function of the organism; there is then nothing astonishing in the fact that the dental organs do not escape the invasion of this pathological process.

It was in the year 1868 that we first heard of the spontaneous falling of the teeth.

L. Labbé made this observation to the surgical society. He said: "I allude to a patient afflicted with a singular disease of the alveolar process, characterized by its slow and progressive destruction. The front teeth, although very sound, loosened and fell successively without pain and almost without loss of blood; the molars fell also, yet the gums and the teeth were healthy and sound."

Dolbeau in 1869, and Dubreuilh some years later in 1872, published analogous facts, guarding however the same reserve as Labbé, and without formulating a positive opinion on the nature of these lesions.

All these observations were simply presented as singular cases, as pathological curiosities that can be left to the future to elucidate. Unfortunately in none of these observations the fact of the patient having tabes was alluded to, and we cannot well establish by these documents the relation of cause and effect that exist between tabes and the spontaneous falling of the teeth. However it is necessary to say that in 1868 tabes was not well understood, since the first description by Duchenne of Boulogne dates 1858. The symptoms were more obscure, and the eminent surgeons that we have cited were excusable for not having sought to seek among their patients the sign of *ataxia.*

The first well-established observations of dental maladies in the course of tabes were presented July 11, 1879, to the medical society of the hospitals by Professor Vallin of the "Val de Grâce." These two cases deserve to be briefly analyzed. In the first case it was a well-established case of tabes of seven years duration; about this period the two superior right bicuspids and first molar became loose, though not painful, and gave to the patient a singular sensation. The teeth seemed to elongate. In examining them with his finger they fell successively in his hand. The removal produced no pain; the bleeding was insignificant. These teeth were intact without any trace of caries; the gums were healthly and pink; there was no trace of inflammation, nothing that would lead one to think of pericementitis. Several days later this expulsion of the teeth was followed by an elimination of a deposit representing three incomplete and irregular "alveoli cornets," so that one could introduce the finger or instrument in the maxillary sinus. There was no trace of inflammation, and the wound closed rapidly. Three months later two other bicuspids fell out, followed by their alveolar cornets. At last, at the end of six months the superior incisors that alone remained fell without pain, followed as before by the elimination of their alveolar cornets. Each time the teeth expulsed were in a perfect state.

The second case (of M. Vallin) relates to an individual with tabes of three years standing. In two months he lost all his teeth, which fell during mastication, and this phenomenon was so unexpected and so insensible that he swallowed them and nearly strangled. They were, however, in a perfect state of preservation. It is well to note that these two patients of M. Vallin were neither of them syphilitics.

This communication recalled to the mind of M. Lereboullet, who was present, a similar case that he had observed, without however thinking that it was the result of tabes. His patient has since became unmistakably ataxic. Apropos of this, permit me to remark that if M. Lereboullet did not suspect tabes, his predecessors, Dolbeau, Labbé and Dubreuilh, should not be condemned for not having discovered it.

For a time the observations of M. Vallin were forgotton, and the subject was momentarily abandoned, when in March, 1882, in the *Revue de Medecine*, M. Demange, professor at the Faculté de Nancy, mentioned two new cases of this character, although the statistics of clinical observations are somewhat barren. Permit me to dwell a little on those of M. Demange, for they touch a question new and of the first importance, destined to throw a peculiar light on the subject.

The first case treats of an individual who towards the fifteenth year of tabes lost in less than two months all the teeth of the superior maxillary bone. One after the other they became loose, then fell without pain. No roots remained; the alveoli were closed by the gums. The teeth in the inferior maxilla were nearly intact. At the autopsy was found a sclerous inflammation of the nerves of the fifth pair with atrophy of the "noyau d'origine bulbaire" (*nucleus of bulbous origin*).

The second case was an individual at the fifth year of tabes, who, in one month, lost all the teeth on the left side of the superior maxilla. Those on the right side were nearly intact.

The teeth on the left had fallen without pain; they became loose and ready to fall with the least touch. The patient died with an intercurrent disease. At the post-mortem was discovered the fifth nerve disminished in volume and atrophied, but a typical fact, the fifth nerve on the left side was particularly shrunken, being reduced to a thin and gelatinous filament scarcely recognizable. The corresponding Gasseian ganglion was completely atrophied and reduced to a flattened glassy shell in which there was no appearance of nervous substance.

It is undeniable that these two observations, complete and based on anatomo-pathological statements, make the clearest demonstration of the connection of tabes with the spontaneous falling of the teeth. Thus M. Demange does not hesitate to draw the following conclusions: "The trophic influence of the fifth nerve may manifest itself in the dental system during the course of tabes. At the level of the alveolar borders an osseous separation is produced, permitting the tooth to fall spontaneously from its alveolus. This trophic condition can exist at an early stage of the malady.

At the end of this same year (1882) M. Feré, a physician of Bicétre, published in the "Archives de Neurologie" an article in which he describes studies relative to osseous lesions and articular ataxia. In the course of this study he gave a description of an inferior maxilla without making any allusions to the changes of dental organs. He contented himself by saying that the inferior maxilla was rarely found attacked, and he cited the communication of M. Vallin.

This omission however suggests a very plausible explanation. After the foregoing observation you will notice that tabes seems to attact particularly the superior maxilla. Let us add, however, that as well as one could judge from the photograph which accompanied the study of M. Feré, the inferior maxilla appeared to be totally denuded of its teeth.

The complete and precise observations related by the eminent neurologist of Nancy drew attention to this new question, and the following year, 1883, M. Bonnieux based his inaugural thesis upon them. In that interesting study he draws a parallel between dental and ungual lesions that manifest themselves during the course of tabes and diabetes. This study, based entirely on the observations of Vallin and Demange, contains but one new case emanating from the professor of the Val de Grace. In this case it was a tabetic patient since 1874. In 1881, that is to say after the seventh year of the disease, he had used a plate for two years resting on the incisors and the right canine, replacing the two six-year-old molars and the second right bicuspid of the inferior maxilla. At that time and during great sufferings the patient observed a recession of the gum surrounding the right canine, then the first bicuspid, the four incisors, the left canine loosened and fell without pain. He came to Paris, and the canine and the five other loose teeth were extracted. There was a slight bleeding; the teeth were sound. In December, 1883, the two superior incisors became loose, although the gum was very healthy, neither being abscessed nor detached; at the same time the patient was suffering excruciating pain. Then in January, 1884, the remaining teeth tightened and became so firm that at last the patient was able to masticate without difficulty.

The opinion of M. Bonnieux, in which he sums up his study, is that a dental affection can show itself in an early period of spinal affection which would be a sign of the invasion of the bulb by the "systematic" lesion. The osseous lesion of the maxilla, to which is imputed the spontaneous falling of the teeth, should be then classed among complications of tabes which denotes the extension in the bulb of the medullary lesion. M. Bonnieux continued: the falling of the teeth when perfectly sound is an occurrence that is not rare in tabetic patients; it is followed by a veritable exfoliation of the maxillary border, which is attacked with a veritable "osteoporose."

In 1884 M. Hay-Margirandiere took up anew the question in his inaugural thesis. He naturally took his basis from the observations of MM. Vallin and Demange. However, after having cited those cases that had become nearly classic, he recorded a case that came under his personal observation that merits our attention. An individual had suffered the first terrible attacks in 1860. In 1881, twenty years later, the two first right and left superior molars commenced to become loose, and he had them extracted, thus preventing their fall. Soon his superior teeth—the molars at first, the canine and the incisors after—loosened in their turn, without caries or pain, and he took them from his mouth without any difficulty. The cicatrization was rapid. At the end of the year 1881 there remained in the upper jaw only one tooth; in the lower none were missing.

Is it necessary for us to cite another clinical fact? In December, 1887, we saw Professor Charcot, for whom the scientific world is still in mourning. He presented to us in one of his lectures a patient who complained of having the left side of his face insensible, or rather that side of his face was the seat of a painless anæsthesia. Quoting his words: "It pulls me as though it was being pulled with a pair of pinchers." At last he complained of numbness and formication in the eye, in the nose and in the left gum, of burning in half of the tongue. He lost his teeth, although very sound, from the left side of his mouth, taking them out without pain. With these symptoms were joined the absence of the reflex "rotulien" and the sign of Argyll Robertson. This was sufficient for Charcot to diagnose without hesitation the disease as tabes.

After having enumerated facts that he was able to collect, M. Hay Magirandiere made a succinct and clear explanation of the pathogeny of the trophic affections of tabes. With some reservation of little importance we coincide entirely with his views. The spontaneous failing of the teeth is preceded with a period that by the nature of the phenomenon demonstrates clearly that there exists in the sphere of the fifth nerve certain changes which produce an alteration in the nutrition of the teeth. The patients were already far advanced in their ataxia, a fact which explains itself since the lesion of the posterior branches had already reached the bulb. We can then group these phenomena under two heads: a premonitory period and a shedding period.

The premonitory period of duration—generally very short—varies from a week to a month. It is characterized by a cephalic symptom seated principally in the sphere of the fifth nerve. If in the course of tabes a patient must lose his teeth in consequence of atrophic affection it is very probable that during a short period would be observed sensitive affection in the zone of the trigeminus (fifth nerve). All tabetic patients who are affected with enervation in the sphere of the trigeminus do not necessarily lose their teeth, but at the time the falling of the teeth takes place there is certainly found changes of sensibility that are in some manner the precursors of trophic troubles which will soon appear. Charcot, notwithstanding, had already established some time ago that there is a close relation between the painful exacerbations and the appearance of certain trophic affections in the course of tabes.

In the second period the falling of the teeth takes place. No other cause than that of tabes can be attributed to it. The patients discovered by chance that their teeth are loose, and all agree that they felt no pain. The absence of pain, the rapidity of the enucleation of the tooth without pericementitis or gingivitis, the perfect soundness of the tooth—these are the principal characteristics of tabetic influence. In all these observations the teeth were always perfectly healthy, without the least trace of caries. The course of this lesion is very nearly the same in all cases. Each tooth is affected separately, the gum recedes insensibly, and the tooth falls in a perfect state of preservation, without pain, without inflammatory reaction, and all in the space of a few days. If one considers them in their entirety all the teeth in a maxilla may be lost in the course of two months. Such was the fact in the first case of M. Demange. In the second case of the same author all the teeth of the left half of the superior maxilla fell out in the space of four weeks. The two patients of M. Vallin lost in a year all their teeth, from three to five at a time, by periods: then there was a period of rest, followed by another falling of the teeth. The termination was the same in all the cases: after the shedding of the tooth a short period of cicatrization of common duration ensued. Finally the maxilla underwent a kind of atrophy that diminished sensibly to its normal volume.

Such is the actual state of the investigation; such is the general admitted opinion of to-day from which we can draw the following conclusions:

First. In the course of tabes the teeth can be so affected in their nutrition that they fall spontaneously.

Second. It is not, however, a common fact, since there does not exist but six well-defined cases.

Third. This spontaneous falling is due to a parenchymatous condition of the fifth pair, as was demonstrated in the pathologo-anotomical investigation of M. Demange.

Fourth. The change of the dental organs is in proportion to the intensity of the lines of the fifth nerve.

Fifth. The superior maxillary branch of the fifth pair seems to be subjected to a special susceptibility and to be attacked more frequently than the inferior. Such at least is the result of the majority of the investigations related here. There being but one case where the bulk of the inferior maxilla commenced to loosen and afterwards became tight.

Sixth. This spontaneous falling of the teeth is a symptom rather tardy in tabes, contrary to the opinion of M. Demange, since in four of the cases observed the phenomenon took place between the seventh and the twenty-first year of the tabetic evolution.

Every nosological study, no matter of how small importance, requires a chapter devoted to treatment. Science, which has succeeded in ten years in elucidating so completely the pathogeny and the symptomatology of tabes, yet remains dumb as to the question of treatment. Charcot was pleased to say: "Tabes stops sometimes; it is not cured; it will never be cured."

If we physicians are powerless to arrest the course of tabes, perhaps you dentists will be more fortunate at least in that which concerns those dental affections that we have endeavored to expound to you.

If tabes is an affection absolutely fatal, it is also true that its course may be very slow. Then if a patient suffering with tabes comes to you and complains of the spontaneous falling of his teeth, and asks your aid, you will know how, we doubt not, to apply your art of mechanical dentistry. You will thus in a measure assist his alimentation and render his life more supportable. It is the only relief that science can render him.

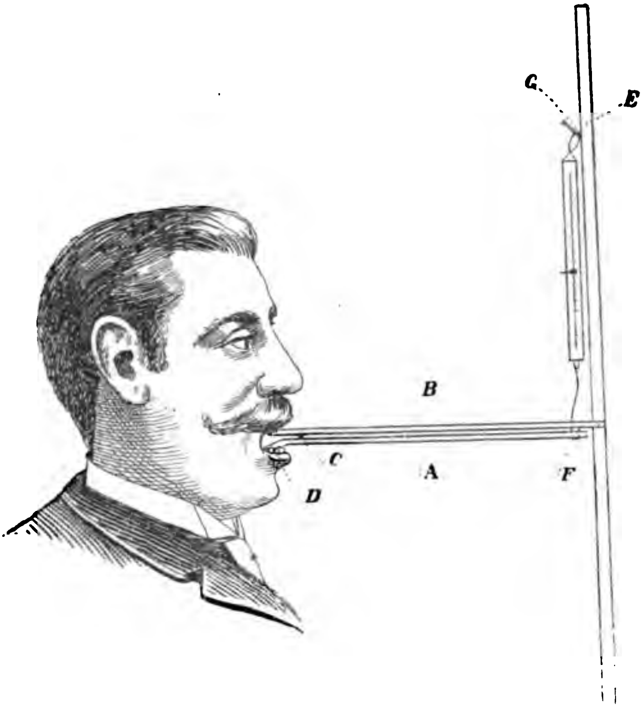
SELECTIONS.

MASSETER TEST.

BY DR. J. N. PRATHER, SEATTLE, WASH.

I FIND the little device I made for ascertaining the power of the human jaw far more useful than I at first supposed. Within the two months that I have been using the device it has saved me the annoyance of making over two if not three bridges, and as it may also prove of use to others I will bring it to the notice of the profession through the medium of your valuable journal.

From the tests I have made I find there is a very wide difference in the power of the jaw. Men bite about one-third harder than women. Many men, however, bite no harder than the average woman. The strength of the masseter and allied muscles as exerted on the incisors of an ordinary female is about fifty-five pounds; that of the male about eighty pounds. The extremes are about forty pounds and 192 pounds respectively; the latter bite was extraordinary, but it was easily made by a gentleman in whose mouth I have just placed a bridge carrying a molar and bicuspids. It is hardly necessary to state that this bridge is by far the strongest that I have hitherto made. Following is the description of the device, which I have denominated the Masseter Test. It it so simple that any dentist can make one in a few minutes after securing the necessary pieces. Get a small spring scale, such as is used by housekeepers, and secure a soft pine board seven-eighths of an inch thick. A blacksmith can make two little steel plates seven-eighths of an inch by two inches, across the face of the center of one of which let there be a groove or notch; of the other, an edge to rest in the groove, thus making a frictionless bearing which acts as a fulcrum. Make holes in the plates, countersink them and fasten to arms A and B (see figure). Let the fulcrum C be one and one-half inches from the end. Make a notch in arms A and D exactly one inch from the fulcrum C for the lower teeth to catch in—it does not matter about the upper teeth, as they will come near enough to the required place. Fasten the arm B to the upright E, twelve and one-half inches from the bearing C. The arms A and B may be held together at the fulcrum C by taking a small band of tin or other metal and binding it around one of the arms and securing it to the other by a couple of pins or tacks. Hook the scales in the notch F, twelve inches from the fulcrum C, draw it up tight and hang it on nail G and the machine is in order.



As the bite will be made one inch from the fulcrum, and as it is twelve inches from the fulcrum to the hook of the scales, each pound indicated on the dial will require twelve pounds at the bite. Hence when the scales indicate 5 pounds, it requires a force of twelve times five or 60 pounds to the bite.—*Pacific Dental Journal.*

PYORRHŒA ALVEOLARIS.

Dr. F. T. Van Woert establishes six points:

First. That necrosis of the alveoli never is present in this disease.

Second. The waste of bone is due to an absorption, the same as that which takes place after the extraction of a tooth.

Third. That the disease is confined to the peridental membrane, and the deposits and absorption of bone are a result, and not the cause.

Fourth. That the disease can be conveyed from one mouth to another through imperfect care of instruments, and such other means as our general operative work makes possible.

Fifth. The operation recommended by Dr. Riggs is productive of more harm than good, and should never be performed.

Sixth. There is no treatment now known that will entirely eradicate the difficulty, but I think the one recommended by me will go far towards holding it in check. Of one thing I am certain, if you adopt it you will never do harm—a point in its favor that the old treatment cannot claim.

The first step recommended in his treatment is cleanliness, and "the avoiding of infection;" second, sterilizing of hands, instruments, napkins and everything else used in or during the operation. "The searing of the orange wood, which is used to convey the tri-chlor-acetic acid recommended into the pockets and beneath the gum, is to prevent the laceration of the soft tissues by fine splinters that are liable to be formed in shaping the points, and the acid itself is to soften the deposits and cauterize the surface, without leaving a slough."

"The instruments designed to remove the deposits are varied." Recommends those devised by Dr. Allport.

I wish to give you a new method of removing the deposits. Three or four weeks ago I had a case that gave me a great deal of trouble, and after trying for a long time to cleanse from the parts the nodules, I was about to give up in despair, when it occurred to me that a chisel and mallet would be just the thing to start them. I set to work to adjust my Bonwill mallet for the purpose, and the results were so far beyond my expectations that I could hardly believe myself. I put a chisel of very small width in the mallet, and found that without the least danger of injury to the soft tissues I could chip off all the matter calcified upon the roots, and with less pain to the patient than by any other method with which I am acquainted. The same effects can be secured with the electric, or any mechanical mallet other than the automatic.

After treatment, the inflammation may not subside, yet if the parts are kept in an aseptic condition and free from these deposits, I doubt if you will find any absorption, or if the patient will loose the teeth. The principal difficulty arises from the lack of persistence on the part of the patient. He is so apt to think that all this attention is unnecessary, and will not come when told or sent for, but leave it until he feels a return of the uneasiness. The result of this will be very rapid progress of the disease and the ultimate loss of the teeth, while the dentist will get the blame.

DR. C. N. PEIRCE defines the pathological condition thus condensed:

First. The inflammatory stage of true pyorrhœa alveolaris primarily begins in tissues on the side of the root near the apical extremity, and secondarily advances towards the gingival borders.

Second. The cause of this inflammation, or pericementitis, is the plasma exudation from the blood-vessels, freighted with salts, which in their deposition and crystallization upon the cementum of the root exert the influence of foreign bodies, and so act as irritants.

Third. The salts in question as disclosed by chemical analysis are calcium and sodium urates, free uric acid and traces of calcium phosphates.

Fourth. The chemical nature of these salts indicates a condition of the blood in which there is an excess of uratic salts and uric acid, due either to increased formation or imperfect elimination. The excess of these salts general pathologists regard as indicative of a faulty nutrition, and the immediate cause of a series of local disturbances to which the term gouty has been applied, the nutritional disturbance being known as the uric acid diathesis.

Fifth. Results from constitutional, in connection with the usual local treatment, in a number of well-authenticated cases of pyorrhœa, have been so marked and satisfactory that the writer feels fully justified in the assumptions regarding the origin of the disease.

ALBERT P. BRUBAKER, M.D.:

I will simply present a few facts taken from the field of general medicine, which will perhaps assist in demonstrating the dependence of pyorrhœa on a constitutional disorder.

At the outset it should be made clear as to what pathological condition is embraced by the term pyorrhœa alveolaris. According to Dr. Peirce, and with him I fully agree, it is not that pathological condition which, beginning at the gum margins as a simple inflammation advances towards and involves the pericementum, and even leads to the formation and discharge of pus. This is a purely local condition, though capable of being aggravated by vitiated systemic states, established by the deposition of salivary salts, on the removal of which the inflammatory process subsides. This form of pyorrhœa is not to be confounded with that specific inflammation of the pericementum which begins at or near the apical extremity of the root, and which is attended by the formation of pus, the absorption of the alveolar process, and the eventual loss of the teeth. This inflammation is of constitutional origin, established by the deposit from the blood of specific matters, which chemical analysis has shown to be calcium and sodium urates and free uric acid. The chemical character of these salts is proof positive that their deposition is indicative of a constitutional or nutritional disorder. Owing to the difficulty experienced in removing this deposit, and also to the fact that it is as constantly being renewed, the inflammation and its concomitants have resisted all local treatment which has been employed.

It is this chronic, persistent, destructive form of pericementitis which is to be regarded as an expression of the gouty diathesis.

This differentiation of the pericemental inflammation into two distinct forms, one local, the other constitutional, must be clearly recognized in order to comprehend the pathology and treatment of the disease under consideration. That the pericemental membrane, the vitality of which has been lowered by mechanical or chemical agencies, may become the seat of uratic deposits, is in harmony with pathological processes occurring in other portions of the body.

The mucous membrane of the bronchial tubes, the vitality of which has been impaired by various causes, may become the seat of uratic deposits, which will give rise to a persistent inflammation, attended by increased and altered secretion, and which resists the customary therapeutic means and yields only to an anti-gout treatment. The mucous membrane of the pharynx, from the deposition of smilar material, will become the seat of an inflammation which is characteristic. The gouty throat is easily diagnosticated. At times, small masses of calcium urate are discharged from the mucous follicles of the mucous membrane. Many other instances might be cited confirmatory of this view. Looking at all the facts, it is readily conceivable that the pericemental membrane is just as susceptible to uratic deposits as any other tissue, and that a gouty pericementitis (otherwise pyorrhœa alveolaris) finds its analogy in gouty bronchitis, gouty pharyngitis, etc. It is needless to say that in all these instances the patient was the victim of that perverted nutrition which is known by the term gouty. That this form of pyorrhœa, which Dr. Peirce regards as an evidence of the gouty diathesis, is so in reality, is demonstrated by the fact that the deposit is similar in all respects to deposits found in other tissues, the seat of inflammations long since recognized as of a gouty origin.

The objection that patients suffering from this persistent pyorrhœa are not always gouty, is only valid when it has been proven that they are not gouty. The burden of proofs must rest with the objectors, in view of the facts which have been recited regarding the causation, and which will be adducted in reference to treatment of pyorrhœa. The common assumption that gout is but an inflammation of the joint of the large toe, or the joints of the fingers, is highly erroneous. This diathesis may manifest itself in a multiplicity of ways. Nervous disorders, cutaneous inflammations, visceral disarrangements innumerable may be established by the deposition of uric acid salts. The diagnosis of these gouty manifestations is only possible with those clinicians who have familiarized themselves with the protean character of this diathesis. It is a fair assumption, and one supported by observation, that the large majority of pyorrhœa patients present other symptoms of gout. A careful examination of the patient's physical condition, and an investigation into his family history will frequently, if not always, disclose some gouty manifestations.

In dental as in general medicine, the specific character of any given pathological condition may frequently be inferred with a reasonable degree of certainty, from the results of specific treatment. If some obscure chronic inflammation, which has resisted all forms of medication, should yield and disappear under the administration of quinine, mercury or colchicum and the alkalies, it would be a fair assumption that the underlying cause of the morbid state was the malarial, syphilitic or gouty diathesis. If a chronic inflammation of the pericementum, after resisting local treatment for months and years, should yield and disappear under an anti-gout treatment, the practitioner would be justified in regarding the disease as but a manifestation of gout.

Now, the facts which have been elicited by Dr. Peirce in the treatment of pyorrhœa absolutely support this view. An outline of the treatment adopted by him has already been published, and a detailed treatment with the result is forthcoming. It is only necessary for me to say that it is strictly along the lines of dietetic, hygienic and medicinal means, adopted by clinicians in the treatment of all forms of gout.

PROF. JAMES TRUMAN, D.D.S., gives the following brief summary of his views:

First. Pyorrhœa does not occur at the apices of roots as a distinct pathological condition.

Second. Deposits may be found there, but always subsequent to the death of the pulp and pericemental membrane.

Third. That uric acid may affect the membrane subsequent to the injury of that tissue, but is not directly the producing cause of lesions in that organ.

Fourth. The action of syphilis, scurvy, certain medicines and general constitutional disturbances have a similar effect to invite this pathological state.

Fifth. Pyorrhœa alveolaris is finally a local disease, aggravated by systemic conditions and to be treated upon a clear comprehension of its local and constitutional complications.

PROF. S. H. GUILFORD, A.M., D.D.S., says:

Now while there is a degree of plausibility in the theory, as set forth in the *International Dental Journal* for January of this year, it lacks confirmatory evidence in several particulars. In the first analysis given only three specimens had been examined, and of these but two showed the presence of uric acid in any appreciable quantity. In the second analysis, made by Prof. Brubaker, some six or eight specimens were examined, in three of which only urate of soda crystals were found. It will thus be seen that at most but eleven specimens had been examined, and of these only five, or less than one-half, gave positive evidence of the presence of urates. Certainly the number of analyses was entirely too small upon which to base a theory, and their results too unfavorable to serve as confirmatory proof.

In describing the difference between serumal and salivary calculus, he speaks of the former as being constitutional, and the latter local in its origin.

Now, to my mind, if one is constitutional the other is also, for the saliva must receive its calcic constituents from the blood, since there is no other source from which they can be derived. Both forms of calcic deposit, therefore, are derived from the blood, the one directly and the other indirectly through the medium of the saliva, and the experiments would have been found in each, and in such event would hardly have been considered confirmatory of the theory advanced.

If it should be granted or proven, however, that the exudations and deposits are the same both in gout and pyorrhoea, and their origin similar, we ought to find the two diseases, or rather two manifestations of the same disease, commonly associated in the same individual. Is this the case? Although Prof. Peirce and certain others think they have noticed this relationship, we seriously doubt whether it exists in many cases.

That both should be found occasionally in the same individual is not to be wondered at, for gouty manifestations are far from uncommon, and pyorrhœa is multiplying its victims very rapidly, but two diseases of totally different origin are frequently found in the same individual. To prove a common origin they would both have to be amenable to the same line of treatment. and until the identity of the two conditions is thus established, we must class ourselves among the doubters or unbelievers in the theory advanced.

In all cases of pyorrhœa that have come under my observation, I have failed to find one in which gouty manifestations were certainly present.

The experience of others in this respect may be different from mine; not having lived to see so many theories based upon a slender foundation first accepted, then investigated, and finally disproven and discarded, I, for one, have come to the point of requiring for the acceptance of any new theory a stronger array of facts and confirmatory evidence than has been presented by Dr. Peirce in support of his hypothesis.

DR. S. G. PERRY says:

Remembering that pyorrhœa, like gout, does not appear until about middle life, and that both to a certain extent are inherited, and both are susceptible to alleviation by proper treatment, but neither positively curable, gives, it seems to me, a sufficient basis on general principles for the tentative acceptance, at least, of Dr. Peirce's theory. If it proves to be absolutely false, the agitation of the question can do no harm, but must do a great deal of good, for I believe there are not many people who have reached forty years of age who do not suffer in one way or another from an excess of uric acid, and who would not be benefited by a correction of diet and general habit of life. That erosion is due to an excess of uric acid I have not a shadow of doubt.

DR. R. OTTOLENGUI observes:

I would like to say a word about terminology. Pyorrhœa alveolaris is a bad name. It is indefinite and almost meaningless for the purpose to which it has been applied. But there is this in favor of it: It is already well known to a vast number of laymen. It is not all uncommon for me to have new patients ask me to examine their mouths to see if they have pyorrhœa. They usually use the one word, which is significant. The public want simple names for their diseases. Since there is no other part of the body which is afflicted with pyorrhœa, it is clear that the explanatory word alveolaris is unnecessary. Therefore, I would favor the adoption of the name pyorrhœa as a designation for the class. Next we recognize there is more than one form of the disease, and I am not sure that there may not be more than two distinct forms, with different etiology. I do not favor the names proposed by Dr. Black, nor do I like those suggested by Prof. Peirce, but I cannot offer any better. Perhaps it might do to call the worst form serumal pyorrhœa, and the other salivary; but I do not really advocate this, because it is still to be decided what part the deposits play in the disease, there being no doubt in my mind that it may exist in its most discouraging form without deposits either from the blood or from the saliva.

Gingival pyorrhœa (to use the term as a temporary designation for the purposes of this paper) is really a gingivitis which has been neglected until a suppurative stage is reached. This suppuration may result in two ways, or may be caused by both together. The first appearance is a localized but well-marked inflammation, confined to the gingival pedicle which lies between the teeth. For a long period it will extend no further, and there will a well-defined line which appears to separate the inflamed from the normal tissue. This line will be just below one drawn across the highest point of the gingival arches. If the patient notices the disturbance at all, the report will be "my teeth bleed when I clean them." In this stage the disease in not difficult to control. Nightly applications of glycerole of tannin will accomplish much. In time the inflamed territory until the whole of the margin of the gum is involved. Then the gums appear turgid and swollen. They also become rough and loosely bind the teeth. A sort of pocket is formed and deposits are invited. These in turn add to the trouble, until we find them exerting an irritating influence which ends in a purulent condition. Or, where deposits are not made, the gradual degeneration of the vitality of the part will result in pus. In these cases pus may be abundant, but the pocket will be deep, and the pericementum is not at all involved. Of this I am positive. When the pericementum is involved, then I would say that from gingival pyorrhœa we have supervening the condition which I have denominated salivary pyorrhœa. I do not mean that this second form always originates in a gingivitis, but where a gingivitis is present we have a fruitful soil for the grafting of the more dangerous malady.

The salivary pyorrhœa, then, is where salivary calculus is found about the necks of the teeth, with pockets extending up and encroaching upon the area originally occupied by the alveolar bone, and from these pockets we expect pus. This condition I would include among those possibly attributable to uric acid, though the next is more probably so.

Where the disease is solely serumal pyorrhœa, we would argue that salivary calculus was not necessarily present at the initiatory period. The deposit has been made at or near the foraminal end of the tooth, and the subsequent pocket has been formed by the burrowing of the pus which has accumulated as a result of irritation. I am inclined to believe that in these cases the serumal deposit is not a mere incident of the disease, but that it is the primary lesion. If not, then we must imagine that the disease exists first; that we have pus accumulating at the end of the tooth and burrowing its way outward until a pocket has been formed, and that the serumal deposits occur afterward. Now, who can truthfully report such a condition? We have seen pus discharges where no deposits exist, but who, seeing this, can assert that deposits of one kind or the other have not existed prior to the examination made by himself? Personally, I have never noticed such a condition, except when instead of a well-defined pocket, there has been rather a well-marked separation of the soft tissues from the tooth itself, with a dissolution of the bone; and invariably I have observed that the pockets do not reach the end of the root, except in the final stages, when extraction becomes almost an immediate necessity. The serumal pyorrhœa, then, in my opinion, begins when the deposit is made at the end of the root.

M. L. Rhein, M.D., D.D.S. (of New York) says:

That a very common type of pyorrhoea exists as a result of uric acid diathesis is not a new doctrine by any means. Cases due to such causes have been treated in a constitutional manner for many years.

If Prof. Peirce intends in his latest papers to set up the claim that all the cases of genuine pyorrhœa have this source, I must differ with him. I do not, however, understand him in this way, but merely that he has picked out one of the most frequent causes of the disease and endeavored to prove by chemical analysis of the deposit on the root that it is a result of the faulty metabolism of that particular system.

Has he proven to our satisfaction that such patients have uric acid in some form on the deposits, and that patients free from pyorrhœa have no traces of uric acid in their salivary deposits?

I am in doubt at the present time how to answer the question. A half-dozen birds will not do for a flock, neither will a few isolated chemical tests definitely determine a disputed point in pathology. My own views of the subject would naturally tend to induce me to give the firmest adherence to his belief, that an exudation of urea in rheumatic or gouty subject would proceed through the pericemental tissues. Can we not find this same exudation of urea in comparatively healthy people? I am also not prepared to answer this question; except that if any one chooses to place firm reliance in the three uric acid tests stated by Prof. Pierce in the January number of the *International Dental Journal*, then that same party will be obliged to form the opinion that uric acid is a natural constituent of all calculary deposits on roots of teeth, because the test No. 2, the dry or destructive distillation test, will produce its result—free ammonia gas, NH_2—on any specimen of calculary deposit that may be used from the healthiest of mouths. The truth of the matter is that this is not a fair test, for it is impossible to obtain deposits around roots which will not contain more or less organic matter, and, as a result, there is present nitrogenous matter which will invariably give out the ammonia fumes. Finding one of Prof. Peirce's three mainstays as weak as this, it behooves us to corroborate his experiments with care and multiplicity, before we ought to come to a just conclusion as to whether uric acid is found in some calculary deposits and not in others.

My investigations have led me to believe that the etiology of pyorrhœa varies, depending on any disease that is powerful enough to bring about abnormal metabolism, and as we have pus exuding in all these cases, the most appropriate nomenclature is to retain the word pyorrhœa, adding as its adjective, the disease which is the direct cause of the nutrient function. —*Dental Practitioner and Advertiser.*

ENAMEL FOR DENTURES.—M. Bouls, of Paris, covers vulcanite and metallic plates with a flesh-colored enamel of a peculiar kind, and claims that it will wear well for a number of years, and can be easily renewed. The plates are varnished with three different enamels, and dried in a warm-air chamber made for the purpose, which keeps up a steady temperature at a certain degree. The first coating is the foundation, the second gives it the flesh color, and the third imparts the gloss. The plate, vulcanite or metal, to be enameled, is trimmed but not polished, is slightly warmed and varnished or coated with preparation No. 1, and placed into the warm-air chamber for five minutes at a temperature of from 110° to 115° C. When taken out, varnish again, but put coating on a little thicker, and leave ten to fifteen minutes in warm-air chamber. After cool the surface is made uneven with a chaser or engraver, so as to produce the light and dark shades in the flesh-colored enamel. It is now painted with preparation No. 2, which is the flesh-colored enamel. If the natural gums are of a light color, one coating will be sufficient, but if dark, it will require two or three coatings. This is placed into the warm-air chamber for fifteen minutes. After cool it is ready for a coating of preparation No. 3, which gives it the gloss, and placed in the warm-air chamber for five minutes. The time occupied for enameling is from one to one and a half hours. Preparation to be had from the firm of Messrs. Nicoud & Cie., Paris.—*Zahntechniche Reform.*

MAGNESIUM HYDRATE.—The use of an antacid is frequently indicated in the mouth in cases of acid secretions, erosions and other like pathological conditions. For these we have for a long time been using precipitated chalk, limewater and other such preparations. A friend lately sent us a bottle of Phillips' Milk of Magnesia, and this has now taken the place of all other such alkalies.

The use of magnesia as a laxative, or mild cathartic, in the form of effervescent citrate, or as Epsom salts, is too well known to need comment. But there are certain inconveniencies attending its employment, such as the danger of forming insoluble concretions in the bowels, through its precipitation from the compounds in which it was an element. In its present form it is a complete hydrate, and hence is not subject to precipitation by the neutralization of any of the ingredients which hold it in solution in a compound.

It is pleasant to the taste, and if a teaspoonful be taken into the mouth at bed-time, and rinsed about until it comes in contact with the teeth, it will form an antacid coating which will remain for some time, thus materially increasing the benefits to be derived from it. There is no preparation within the sphere of our knowledge which is so useful in acid erosion of the teeth, and it should be prescribed freely in all such cases. It may be used subsequent to cleaning the teeth after each meal, and should certainly be employed at night and morning.—*Ed. in Dental Pract. and Adv.*

COMBINING RUBBER FILINGS WITH FRESH RUBBER.—To many it may be difficult to imagine that filings and scrapings from finishing plates can be of any value, yet they can be made very useful. After the rough and dirty portions of the plate are scraped or filed off, save the balance, and in packing a thick, heavy plate, first dip the rubber in warm water to soften, then roll it in the filings, and pack as usual; vulcanize carefully, and I will insure a good plate, well vulcanized, strong and tough and not porous. Rubber treated thus before packing vulcanizes in less time.

In heavy plates it is well, of course, to vulcanize carefully; but with ordinary care the plate will not become porous. I use this method in all plates, even when required to be made thin, as it vulcanizes five or ten minutes quicker, and I think produces better results. Formerly in some very thick portions of plates, especially those that required much building up the sides, it seemed almost impossible to prevent the thick, heavy portions from becoming porous; all brands of rubber are alike in this respect, but since using this method I have not had one bad result, or one porous plate. Porous plates have always been a source of trouble and much extra work. But this method, I think, will be found to always prevent any trouble from this source. Try it, and if you have no filings saved and have a heavy plate to make, from an old plate make sufficient to pack the one on hand.—*Dr. W. S. Simonton in International.*

THE DEFECT IN THE DENTISTS.—The dentists of America are the best in the world, but they are nevertheless away behind the mark. We appreciate their ingenuity, their skill, their drills and dams, their composite fillings and artificial teeth. They make the best kind of golden crowns, but do not deserve to wear them. This is because they do not sterilize themselves, or teach their patients how to prevent caries. They are wonderful patchers-up of things half gone, but they do not show how to prevent the going.—*New York Medical Record.*

This is a very peculiar criticism of the dental profession. Ordinarily, the best answer to unjust charges is silence. * * * Dentists have been so long accustomed to this kind of professional criticism that they have come to regard it very much as the chiding of a parent—a proper thing to give, and to be received with due humility.—*Ed. in International.*

A GOOD ROOT-FILLING.—Dr. M. D. Goble, Dubuque, Iowa, writes.—I have a good thing on root-filling, with a record of its use in 300 cases, covering two years, with not an instance of inflammation after filling, nor one failure. It consists of

Chloroform	℥ss
Gutta-percha	
Rosin	āā ʒj

M.—Ready to use in two or three days.

Take an 18k. gold wire filed down to a hair point; wrap a fiber of floss silk or linen lint around it. Dip in the chloro-percha rosin, and pump it well into the nerve canal. Then force into the canal a gutta-percha point. Pack it down, and your nerve canal is not only filled moisture tight, but gas-tight, and the apex and mouths of the tubuli are sealed tight.—*Items of Interest.*

BEES-WAX IN ROOT-CANALS.—Dr. J. N. Collins, of Granville, N. Y., recently read a paper before the Vermont State Dental Society, advocating the filling of root-canals with bees-wax, describing the careful procedure of thoroughly drying the canals, and then introducing the wax and melting it around the mouths of the tubuli with a hot wire. It is not only cleanly and persistently hermetical in adaptation to the surrounding walls, but it is easily removed in the event of subsequent trouble. Dr. Collins stated that Dr. S. B. Palmer, of

Syracuse, approved of it, and had publicly stated his belief that it was the best root-canal filling.—*Dominion Dental Journal.*

CARE OF CHILDREN'S TEETH.—It is true that the evil effects of "bad teeth" are seen more in childhood and old age than at any other time of life. I am satisfied that in children a number of diseases may be traced to the carious condition of the teeth. Suppuration of the middle ear is caused again and again by a carious tooth. Disease of the eye is also caused by the condition of the teeth. Various neuralgias and reflex nervous symptoms arise from the same cause. Last, but by no means least of all, come the digestive troubles brought on by the carious teeth.—*Dr. E. F. Wilson in Ohio Dental Journal.*

BLACK RUBBER.—After the polishing of black rubber plates there will sometimes be noticed a grayish appearance upon the surface. This is due to the elimination in some way of the coloring matter, which leaves exposed particles of the rubber in their natural hue. These may be removed by the application of carbon bisulphide, which is a solvent of rubber. Chloroform will partially remove it, but the other is best. As the carbon bisulphide has a very offensive taste and odor, the plate must be carefully washed after its use.—*Dental Prac. and Adv.*

GOLD FILLING IN CHILDREN'S TEETH.—I am almost prepared to assert, says Prof. Truman, that it is malpractice for any individual to place gold fillings in children's teeth from eleven to sixteen years of age. I know that it is a strong statement, and perhaps I should qualify it to some extent by the assertion that some teeth will bear it; but we cannot reason upon exceptional teeth.—*International.*

COPPER AMALGAM.—Dr. Jarvie says: There are certain classes of children's teeth—I mean quite young children—in which we can save the temporary molars for a few years by the use of that material (copper amalgam) that we cannot save in any other way.—*International.*

NITRATE OF SILVER.—A very convenient way of keeping nitrate of silver ready for use is to soak asbestos fibres in a saturated solution, and allow to dry.—*Zahntechniche Reform.*

LEAVING THE CANALS OPEN is bad practice, whatever is used to render them aseptic. Though the contents are all removed and the parts perfectly sterilized, there will be trouble. The canals must be thoroughly filled and sealed.—*T. W. Brophy in Items of Interest.*

TINCT. CAPSICI. is very good to use in the first stages of periodontitis, or where it is advisable to hasten suppuration. Paint the gums with it. It is also used in connection with Zingiber Pads placed on the gums.—*Zahntechniche Reform.*

TO PREVENT NAUSEA IN TAKING IMPRESSIONS.—Allow the patient to inhale, before and during taking the impression, spirit of camphor.—*Zahntechniche Reform.*

REPORTS OF SOCIETY MEETINGS.

PORTLAND DENTAL SOCIETY.

THE Portland Dental Society met in the parlors of the Hotel Portland on Wednesday evening, March 28th, President Tate in the chair.

The paper of the evening was on the subject of "Implantation," and was presented by Dr. John Welch, who gave a detailed description of an operation he had recently witnessed in San Francisco as performed by Dr. Younger. The paper having been read, the President said the subject was open for discussion.

Dr. E. E. Cawood said he would like to have Dr. Lane describe an operation he had witnessed performed by Professor Guilford of Philadelphia.

Dr. E. L. Lane remembered the circumstance very well. The young gentleman was one of the students in the college, and believed he had lost a first upper left bicuspid. Having extracted a tooth that matched it very nicely from the mouth of a young lady in a regulating case in college, he carefully put it in a bottle, and as soon as he got a chance at Prof. Guilford he had him insert it in his own jaw. The operation was performed by drilling in the process after pretty thoroughly cocaining and implanting the tooth. Saw the tooth about a year afterward and it was still doing good service.

While on his feet he would just mention a little circumstance of replantation. When the speaker lived in a town in North Dakota, where there were no dentists, his father, who had extracted teeth for a great many years in a small country place in the East, did most of the extracting for the people of this place, and, as his eyes had failed a little, the speaker dropped into it, and gradually it came about that when his father was away from home he had to do the extracting. A gentleman came to him to have a second upper left molar extracted, and in taking the second molar out the first molar came with it. They were fastened together by a piece of process so firmly he had quite a time chiseling them apart after extraction. Thought it was too bad to have him lose that first molar. Was perfectly ignorant of antiseptics at that time; at all events, did not have anything of that kind at hand, but did the next best thing—took it to the kitchen and poured some hot water over it to clean it, and then took it back and inserted it in the jaw. Saw the gentleman three months afterward. He was passing by in his carriage, and taking his whip pointed to that tooth, and said, "It is the best tooth I have in my head."

About a year ago I extracted a tooth in a very severe case of odontalgia. A young lady was suffering, and could not seem to get any relief; the *debris* in the tooth was quite dense, and impenetrable to medicine. After trying for perhaps half an hour without success to alleviate the pain she insisted on the tooth being taken out. After it was removed she was persuaded to have it replaced; so, while she waited, took it into the laboratory, cleaned the canals thoroughly and filled with cotton and cosmoline and oil of cloves to the apex. Smoothed the apex as nicely as possible and inserted a porcelain filling in the coronal surface of the tooth; saw that the cement around that was set good and hard, then put in full strength phenol-sodique; syringed out the cavity with same and warm water and put the tooth back. On the third or fourth day the patient came back and asked which tooth had been replaced. She has never had any trouble with it since.

Dr. L. E. Hibbard had been very much interested in Dr. Welch's paper, and thoroughly enjoyed it. Should like very much to see such an operation as Dr. Welch had spoken of. Thought the matter of ligating should be thoroughly studied. While it might not be necessary in the lower teeth—and probably not in the molar teeth—most assuredly it would be in the anterior ones of the upper jaw. Had tried replanting teeth, and, so far, very successfully. Mentioned one case in particular of a young lady school-teacher, who came to him, after attending a session of the teachers here in Portland, a few hours before train time. She wanted two or three teeth attended to. Removed the tooth she complained of most; used five per cent. cocaine solution as an anæsthetic. This was a right lower first molar. Removed the pulp and used gutta-percha for stopping the canals; passed it through and polished it off at the apex; reinserted the tooth without her complaining. Thought the operation lasted thirty-five minutes. At the end of a week received a letter from the patient, stating that she considered the operation a success.

Dr. E. G. Clark had had no experience at all in implanting, nor had he ever seen the operation performed. Had had some experience like the others in replanting teeth. Mentioned one case of this kind he had five years ago, where he extracted the tooth, cleaned out canals, filled with gutta-percha, and the apex being rough, polished that off and filled with gold, then reinserted the tooth. Used phenol-sodique. The root was a little bit crooked, so needed no ligatures. Saw the patient week before last and the tooth was still in place.

The doctor related another case of a butcher who, in handling a quarter of beef, slipped and fell, knocking out the four upper incisor teeth. The speaker took the teeth, washed them in warm water and put them back without removing the pulps or using any disinfectant. Used nothing but hot water. This happened twelve years ago, and the teeth are there to-day.

Dr. W. A. Wise was reminded of an incident in his experience, six years ago, of a girl who applied to have a lower molar extracted. In a previous attempt by another gentleman to extract the tooth, the bicuspid had been disturbed, but he failed to get the molar out; the speaker removed the bicuspid, took the roots of the molar out of the way, then replaced the former. Saw the case about two weeks ago and it looked as well as any other tooth in the mouth. He did not do anything with the pulp.

He had had two or three cases of children who had fallen and knocked out a tooth. One case of a child two years old, who stumbled and fell, dislodging one of the upper *temporary* teeth. He replaced the tooth, and it staid there until it was time for it to come out. Had had no experience in implanting.

Dr. Ney Churchman thought the wheat had been threshed out of the straw pretty well by the others present. Of course, most every dentist who has been in practice for some time has replanted teeth. Had done it himself sometimes. There are probably half-a-dozen different ways of treating the tooth—with phenol-sodique, etc, even hot water—and one will do probably just as well as another. But he would like to be informed how retention is obtained where the process is greatly absorbed, sometimes down to the thickness of 3-16ths or a quarter of an inch; thought there would not be room there to put in a tooth without the lingual and labial side being in contact with the gum without any protection. There are so many teeth that have been out for years, leaving but a very thin process. He could not see how implantation could be operated for, especially in the case of molars. He supposed there were cases where recent extractions could be implanted very easily.

Dr. John Welch said there were some things about this operation, which, if any one were going to perform, he would like to assist him in it. He remembered pretty well what Dr. Younger did. Did not mention it in the paper, but would say now that the doctor was very particular about disinfecting everything—the instruments, of course—the blades and the handles, and his own hands. As the gentleman has just said about inserting molar teeth, he, the speaker, did not understand that he did that at all. 'The model that he saw, where he put six in one jaw, showed only the anterior teeth. In his opinion only single-rooted* teeth are implanted. It does not matter how long the tooth has been out, or what the absorption has been. There was one little thing he felt justified in telling about. In administering cocaine Dr. Younger was very particular to use a small amount of it. He had a cotton pad and an instrument made to turn right over, and just leave the space that he wanted to operate on. The patient holds that and it leaves the portion to be operated on exposed. He introduces his needle and injects the cocaine, taking plenty of time of course. When he came to put the tooth in its place, he found it considerably too large. He then took a trephine and enlarged the cavity. He probably tried the tooth a dozen times before he got it to suit him.

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*All are implanted.—ED.

Dr. E. P. Mossman thought, as most of the gentlemen present seemed to be telling of what they had seen rather than what they had done, he might say something. The essayist had spoken of Dr. Hunter grafting teeth into the combs of cocks. When a student in an office he had tried that operation himself. Having read of it and being anxious to try it, he purchased a rooster beforehand and had him ready. A young lady came into the office one day with a cuspid tooth extending out under her lip. She wanted it out. His preceptor wanted to regulate it, but she would not consent, so he extracted it. As he, the speaker, was about to make off with the tooth, the young lady asked that she might take the tooth home. So going to the laboratory and securing another cuspid he cleaned and polished it nicely, and gave it to her. He got the rooster and made a slit in the comb, put the tooth in and ligated it as best he could by pieceing the comb in places, and after three or four days took the ligatures off. For two years the cock wore that tooth as nicely as could be, but was finally beheaded.

Query.—Dr. Younger claims, does he not, that there is vital union between the implanted tooth and the surrounding tissue?

Dr. Welch.—Yes, he does in some cases.

Dr. Mossman could not see how there could be where a tooth has been out of the mouth for some time, and is implanted or transplanted.

Dr. Welch mentioned another point in connection with the operation he had witnessed. He noticed that the tooth was bloody. It had been out of the mouth a long time, but the blood was still on the roots. But when Dr. Younger went to use it he laid it in a little bath of the solution of bichloride of mercury, one to four thousand. It lay there probably ten minutes before it was used. He was not particular about removing the blood. Informed him that the dead tooth would remain in place for six or seven years, but in some cases the roots would absorb, and after awhile would have to give way. But he said six or eight years was a long time, and it did good service.

Dr. Churchman had made a study at one time of implanting teeth. He was in partnership at the time with a dentist who practiced it some, and who claimed that the only union there was between an implanted tooth and its surroundings was the deposit of process around the root that held it in place, as you might say, mechanically. There was no vital union between the tooth and the gum, or any of the tissues. It was just the same as in regulating a tooth. It is moved over and held until there is a deposit of bone where it has been moved from, holding it in the placed moved. These teeth that are implanted are held there by a bony deposit for the time being. He would have liked had Dr. Welch asked Dr. Younger how long a time might elapse before he would consider a tooth unfit for implanting. A tooth that had been out for a week might be successfully implanted, while one that had been out for two or three years might be a failure.

Dr. Cawood had had no experience in transplanting, but related a case of successful replantation.

Dr. J. T. Tate could only repeat what had been said, for he had never experimented in implantation, his experience like the others, being limited to replantation. Thought it was since he had been in school that the subject of implantation had been brought forward so prominently by Dr. Younger. He had always been more or less prejudiced against this practice. In fact had told patients more than once that he did not have much confidence in it himself, at least not that degree of confidence that would justify him in putting the patient to the trouble and the pain of the operation, for he did not see how it could be accomplished without considerable pain. But he thought from reading the experience of Dr. Younger and some others, that it had come to be regarded now as a legitimate operation in dentistry. Of course the results might not be very lasting, perhaps not more than six to eight years, and he did not suppose that Dr. Younger had any implanted teeth in place now, more than seven or eight years old, perhaps not that. At the same time we have to acknowledge that there are a good many operations in dentistry that are of a transitory nature. We cannot guarantee some of our operations to last even that long. And so far, those who are disposed to try it, he did not see why it should not be considered just as legitimate an operation as anything else. He could not understand Dr. Younger's claim of the vitality of the peridental membrane. The claim had been disputed by the most eminent men of the profession. He had been recently informed that Dr. Barrett, of Buffalo, had finally agreed with Dr. Younger on this theory, which he had persistently denied heretofore. So if men of his character are brought to acknowledge the truth of these theories, there is much more in the theories than we have been disposed to think. The only explanation of the union of an implanted tooth with the jaw that would satisfy his own mind was that it was in the nature of an anchylosis; but, never having seen a case of implantation, he could not form a positive opinion.

Dr. Hibbard wanted to ask a question in regard to the use of an anæsthetic. Dr. Welch had stated that the operation had continued for a couple of hours, and he knew from his own experience with cocaine that there was no effect of the first injection left. He would like to know whether or not Dr. Younger kept a solution of cocaine on, or reinserted more at times? It would seem to him necessary to keep applying the cocaine during the operation. In regard to the union he could not conceive of a tooth remaining any great length of time without a union. Did not think it was such a hard point to believe. The tooth is something of an organ in itself, and he could not see why the life might not remain.

Dr. Tate thought the tooth was an organ in the same sense that the finger was an organ. If a finger was entirely severed he did not think one could hope to get a reunion. If, however, the slightest connection with the vascular system is preserved, if nothing more than a shred of tissue, there might be hope of saving the finger. He still did not believe there was a vital union between a tooth that had been some time extracted and the maxilla. Thought a person might insert a metallic tooth and still have firm fixation.

Dr. Lane believed that Prof. Guilford had said that Dr. Younger had claimed that a tooth might be out for ten years, and he would feel perfectly safe in inserting it. Thought there was no question but there was vital union in replantation.

Dr. Tate asked if he understood that Dr. Younger only sterilized the tooth about ten minutes.

Dr. Welch was not positive as to the time, but that was his remembrance—that it was only about ten minutes. In speaking of the firmness with which these teeth are united to the parts when they are replanted, Dr. Hatch had told him that a replanted tooth was very much more difficult to extract—more firmly set in the jaw—than the tooth was before. It was almost like pulling out a solid piece of bone.

As to the use of an anæsthetic, Dr. Welch explained that Dr. Younger would stop occasionally during the process of the operation and introduce a very small quantity at a time.

The President asked Dr. Welch to describe the kind of instruments he used.

Dr. Welch said for drilling he used a trephine in an ordinary dental engine.

Dr. Hibbard.—Did the hemorrhage seem to bother him ?

Dr. Welch.—Not at all.

Dr. Tate.—What did he wash the socket with ?

Dr. Welch said bichloride of mercury—one in four thousand. He was particular about the water. He keeps rain water put up in bottles ready for use.

Dr. Hibbard would like to say that if any of the gentlemen find some good incisors just save them and he would offer himself for a clinic, and a practical illustration of the subject might be had.

On motion the subject was passed.

OAKLAND DENTAL CLUB.

THE Oakland Dental Club held its regular monthly meeting at the office of Dr. Cecil Corwin, Tuesday evening April 3, 1894, President Russell H. Cool in the chair.

Dr. Chance entertained the members by reciting his original poem entitled "The Dental Chair." Those who missed hearing it and who never have heard it, have been deprived of a treat indeed. Dr. Chance is a wonder for originality, and no second-rate poet. We all know him as a voluminous writer upon dental subjects and a royal fine fellow.

MEETING OF THE MARYLAND STATE AND THE WASHINGTON CITY SOCIETIES.

THE Maryland State Dental Association and the Washington City Dental Society met in joint session at Washington, D. C., April 24th. A good programme was provided and enjoyed. Many of the profession were present from various sections of the country, among them Prof. C. L. Goddard of San Francisco, who was made an honorary member of the Washington City Society. All were invited by him to attend the Midwinter Fair Dental Congress.

CALIFORNIA STATE BOARD OF DENTAL EXAMINERS.

AT a meeting of the California State Board of Dental Examiners held Friday evening, April 20th, the following were granted licenses to practice dentistry in California on the endorsement of diplomas presented:

A. D. Cameron	Hanford,	California
Chas. A. Litton	San Francisco,	"
H. D. Boyes	Oakland,	"
Ernest Allin	Los Angeles,	"
W. G. DeVore	Santa Ana,	"
A. M. Coffin	Santa Ana,	"
W. M. Garnett	Santa Ana,	"
Carolyn M. McElroy	San Quentin,	"
J. A. Miller	Oakland,	"
W. O. Stuttmiester	Redwood City,	"

By virtue of previous practice:

W. S. Porter	Truckee,	California.

Duplicates:

P. C. Erhardt	San Francisco,	California
H. M. Sheppard	San Francisco,	"
Cyrus Hamilton	Newman,	"

The following resolution, which speaks for itself, was adopted:

Resolved, That the Royal College of Dental Surgeons of Ontario be no longer considered a reputable dental college, within the meaning of the Act of March 12, 1885; and that certificates or diplomas from said college be no longer recognized by this Board until said college shall assume a reputable standard in accordance with the requirements of the reputable colleges of the United States.

JOS. D. HODGEN, D.D.S., Secretary.

OFFICERS AND COMMITTEEMEN OF THE MIDWINTER FAIR DENTAL CONGRESS.

GENERAL COMMITTEE—OFFICERS.

Chairman	L. A. TEAGUE	San Francisco
First Vice Chairman	S. E. KNOWLES	"
Second Vice Chairman	J. A. W. LUNDBORG	"
Secretary	W. Z. KING	"
Assistant Secretary	C. W. HIBBARD	"
Treasurer	W. A. KNOWLES	"
Corresponding Secretary	C. E. POST	"

EXECUTIVE COMMITTEE.

S. H. Roberts (Chairman)	San Francisco
J. M. Dunn	Oakland
Thomas Morffew	San Francisco
H. R. Morton	"
W. F. Sharp	"

PROGRAMME COMMITTEE.

Chairman	W. F. Lewis	Oakland
Recording Secretary	Joseph D. Hodgen	San Francisco
Corresponding Sec'y	C. L. Goddard	"

FINANCE COMMITTEE.

Chairman	Harry P. Carlton	San Francisco
Secretary	Alfred Cane	"
Treasurer	W. A. Knowles	"
	F. M. Hackett	"
	W. R. Bird	Los Angeles
	O. Carpenter	Oakland

MEMBERSHIP COMMITTEE.

Thos. N. Iglehart (Chairman)	San Francisco
M. J. Sullivan	"
A. C. Hart	"
S. H. Roberts	"
A. H. Millberry	"

INVITATION COMMITTEE.

L. L. Dunbar (Chairman)	San Francisco
W. F. Lewis	Oakland

LOCAL ARRANGEMENTS COMMITTEE.

F. C. Pague (Chairman)	San Francisco
L. L. Dunbar	"
Max Sichel	"
C. E. Post	"
C. G. Bush	"

EDITORIAL COMMITTEE.

Joseph D. Hodgen (Chairman)	San Francisco
W. A. Knowles	“
F. W. Bliss	Santa Cruz

TRANSPORTATION COMMITTEE.

Russell H. Cool (Chairman)	Oakland
B. B. Brewer	San Francisco
C. W. Hibbard	“

ADVISORY COMMITTEE.

Thomas Morffew (Chairman)	San Francisco

ASSOCIATION-DAY COMMITTEE.

A. F. Merriman, Jr. (Chairman)	Oakland
C. C. Dennis	San Francisco
H. D. Noble	San Francisco

COMMITTEE ON EXHIBITS.

L. L. Dunbar (Chairman)	San Francisco
F. C. Pague	“
W. J. Younger	“

PUBLICATION COMMITTEE.

F. Teague	San Francisco
H. D. Boyes	Oakland
R. W. Meek	“

DENTAL CLUB COMMITTEE.

W. J. Younger (Chairman)	San Francisco
Joseph D. Hodgen	“
C. W. Hibbard	“
J. A. W. Lundborg	“
Russell H. Cool	Oakland

RECEPTION COMMITTEE.

Chairman.......J. A. W. Lundborg....San Francisco

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L. Van Orden	“	D. Cave	“
S. E. Knowles	“	Frank Burton	Stockton
Wm. J. Younger	“	S. P. Shephard	Placerville
A. Warner	“	W. W. Stone	“
Thos. N. Iglehart	“	W. E. Cook	Eureka
W. Z. King	“	G. A. Dungan	“
W. A. Knowles	“	L. B. Holmes	Woodland
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H. P. Carlton	“	S. M. Harris	San Juan

RECEPTION COMMITTEE—Continued.

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J. E. Cummings	"
H. Hipkins	"
A. T. Regensburger	"
F. Teague	"
H. E. Knox	Oakland
S. M. Gillman	"
A. F. Merriman, Sr.	"
Russell H. Cool	"
John Rabe	"
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C. V. Baldwin	"
M. W. Hollingsworth	"
A. P. Hayes	"
F. M. Palmer	"
J. M. White	"
F. H. Metcalf	Sacramento
E. L. Southworth	"
W. C. Reith	"
A. O. Hooker	San Jose
C. C. Maynard	"
A. A. Gaston	"
J. G. Parsons	San Diego
Robert Stewart	Chico
J. D. Hendricks	Hollister
I. W. Hays, Jr.	Grass Valley
W. R. Prather	Merced
A. T. Hyde	"
L. N. Bedford	San Bernardino
G. L. Voorhies	Vallejo
F. H. Allbright	Red Bluff
G. W. McCowan	Ukiah
G. A. Weyer	Modesto
S. M. Oviatt	San Andreas
F. Z. Pirkey	Colusa
J. S. Small	Amador
E. L. Lane	Portland, Or.
Geo. H. Chance	" "
M. Hayler	Dallas, "
E. T. Phelps	Reno, Nev.
W. S. Porter	Austin, "
H. S. Wardelaw	Carson, "
C. S. Whitney	Miles City, Mont.
W. E. Burkhart	Tacoma, Wash.
F. L. Hicks	" "
J. C. Grasse	Seattle, "
E. R. Vaughn	Tulluredo, Colo.

AUXILLIARY COMMITTEES.

PROGRAMME.

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M. J. Sullivan	"
S. E. Knowles	"
F. C. Pague	"
E. L. Townsend	Los Angeles
J. G. Parsons	San Diego
John C. McCoy	Santa Ana
J. P. Parker	Santa Cruz
A. M. Barker	San Jose
W. De Crow	"
W. G. Wallace	Stockton
C. H. Farmam	Napa
A. N. Dick	Woodland
F. H. Metcalf	Sacramento
Geo. McCowan	Ukiah
R. W. Meek	Oakland
J. M. Whitney	Honolulu, H. I.
P. T. Smith	Denver, Colo.
M. A. Bartleson	" "
A. H. Sawins	" "
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D. J. Wait	Helena, Mont.
W. G. Price	Seattle, Wash.
Geo. H. Chance	Portland, Or.
S. J. Barber	" "

MEMBERSHIP.

W. R. Bird	Los Angeles
Geo. McCowan	Ukiah
A. M. Barker	San Jose
F. H. Metcalf	Sacramento
Russell H. Cool	Oakland
E. W. Biddle	Healdsburg
S. J. Barber	Portland, Or.
J. R. Cardwell	" "
A. A. Doherty	The Dalles, "
M. Hayler	Dallas, "

CORRESPONDENCE.

A CASE OF REPLANTATION.

EDITOR PACIFIC COAST DENTIST: At your request I send you an account of a case of replantation which has some marked features and is somewhat out of the ordinary. On the evening of October 3, 1891, Louis O., aged 13, while coasting upon the sidewalk in East Oakland, was run down by a bicyclist and had the two superior central incisors knocked out. Recovering his teeth the boy came immediately to my residence for repairs. Not finding me at home he came to my office early next morning. I proceeded at once to replant the organs, but without the usual process of removing the pulps. They were immersed in the usual solution of bichloride of mercury, the sockets cleansed from the coagulum, and the teeth returned to their natural position. They were ligated in the usual manner, and kept from dropping down from the sockets by the use of a small roll of modeling composition, pressed (when softened in hot water) closely around the front teeth as far as the second bicuspid. A strap of doubled muslin was placed over this, and each end united to an ordinary rubber band, which enclosed the back part of the head. The elasticity of the band allowed the fullest play to the mouth without danger of displacement of the roll of composition. A muslin strap sewed on to the band near the ears, and passed over the top of the head, prevented it from falling on the neck. The mouth was then thoroughly washed with the following:

Acidi Carb., ʒi.
Sodii Caustic, grs. vii.
Aq. Dist., ℥ji.

The lad was then dismissed to go to school. In two weeks the teeth were firm and the bandage removed. The patient had a congenital cleft palate extending well forward—in fact, almost to the centrals, and as a consequence the maxillary ridge was not as thick at the sockets of the centrals as if the jaw had been normal. I saw the case at intervals for nearly a year; the teeth remained translucent, and thermal tests indicated pulp and nerve vitality.

The lad having removed to San Francisco the case passed from my notice until a few weeks ago, when Mr. ——, of the senior class in the college, called my attention to it and kindly sent for me to see the patient. He had occasion to fill the left central, and, after receiving a history of the case, took it for granted that the pulp was dead and the nerve likewise; but in burring near the pulp-chamber he found sensation, and, upon opening into it, both blood and tissue were found.

The teeth still retain their translucency, although I believe they do not respond as readily to the ice test as the adjoining teeth. I am fully aware that according to accepted theories the pulps in these teeth should be dead; but, in the face of the facts are they? I have had no opportunity to see the character of the blood which came from the pulp-chamber. Those who did are convinced that it was normal, and the tissue likewise. I do not presume to advance any theory as to what has taken place between these severed nerves.

The facts herewith are believed to be substantially correct and your readers can form their own hypothesis.

Yours truly,

WALTER F. LEWIS.

EDITORIAL.

SPEAKING OF ADVERTISING.

THE unique means by which members of the dental profession contrive to place their names and business before the public would be ridiculous and laughable if it were not so seriously prevalent.

There are three distinct classes of advertisers undermining the grand old structure—the *Code of Dental Ethics.* It is not, however, that class, composed of those whom we all so readily recognize as the genus *quackus vulgarus,* pure and simple, that are doing it the most injury; for while they bark and snarl at a safe distance, they tuck their tails and sneak away at the first signs of approaching respectability; nor will their ill-temper work any other injury to the structure than an occasional defacing—as is the nature of the canine—of some prominent corner. Nor yet is it the small worm who burrows into the wooden supports of the decorative portion of the edifice who shames its good name and prostitutes its fairness that he may dwell just as close to the whelps on the outside as possible and yet enjoy the shelter of honesty. The world recognizes him, for man ever knows and hates a worm; and so he is crushed beneath the heel of human hatred.

The danger then is found in a third class—not in the yelping, fighting mob outside; not in those who dwell but in the suburbs of its fairness. Who, then, are they? *The builders and supporters,* or those who impose that recognition of themselves upon the profession and laity. They are the ambitious fellows, who are working for glory and the profession. How they do love our grand old calling; its every gift and office is dear to them. How warm and affectionately they speak of what it has done for them and what we all owe it; which debt, we must understand, must be paid by rallying around their standard and electing them to a coveted office. Then how quietly (?) and delicately (?) they acquaint their following of the honor the profession has conferred upon them. How mysteriously the whole of it creeps into the morning papers. It is said these reporters know where the cigars, etc., etc., are kept.

Such are the typical ones of distinct classes. But ever and anon there blooms forth in all the royal attractiveness of the thistle a novelty that fairly paralyzes us with astonishment. It has, however, been left for Kansas City to furnish the most glaring outrage upon professional decency. Just when the respectable part of New Orleans has succeeded in purging the city of the blight upon its Southern honor, the former place welcomes the disgorged foulness of Missouri. To assist in giving prominence (?) and stability (?) to the enterprise, and at the same time place himself before the buncoed public, a certain D.D.S. subscribes to all official documents his mighty name, degree and the fact that he is "Professor of Prosthetic Dentistry," in one of the colleges—not in the Kansas City Dental College—and a "Member State Board Dental Examiners." We are not sure whether the latter fact is intended as a satire upon the judgment of Governor Lewelling or not; at all events it is a good joke, and his Excellency must enjoy it much.

AMERICAN MEDICAL ASSOCIATION---ORAL SECTION.

FROM time to time communications concerning the American Medical Association which is to meet in San Francisco, June 5th, of the current year, have been published in this journal, and no pains have been spared to acquaint the profession with the importance of being identified with this great meeting.

Dr. R. H. Plummer, Chairman of Committee of Arrangements, is working hard for the success of the meeting as a whole, and Dr. Eugene S. Talbot of Chicago, Secretary of the Oral Section, is laboring quite as hard for the success of the Oral Section; and we are informed by a recent letter from the latter that the success of the Dental Section is assured.

A number of very prominent members of the profession from the Eastern cities will be in attendance, and many interesting addresses and papers will be presented. The Committee on Exhibits promise a rare treat in the way of instruments, materials and furniture, which are to be displayed by the various manufacturing companies; and futher, invite any dealer who may wish to display his goods (who has not already made proper arrangements) to communicate with this journal.

In reply to the many queries as to dental membership in the American Medical Association we append the following resolution:

> *Resolved*, That the regular graduates of such dental and oral schools and colleges as require of their students a standard of preliminary or general education, and a term of professional study equal to the best class of medical colleges of this country, and embrace in their curriculum all the fundamental branches of medicine, differing chiefly by substituting practical and clinical instruction in dental and oral medicine and surgery, instead of clinical medicine and surgery, be recognized as members of the regular profession of medicine, and eligible to membership in this Association on the same conditions and subject to the same regulations as other members.

This resolution is plain and comprehensive, and an invitation is cordially extended to all qualified according to the above resolution, and applications for membership may be had at this office, or from Dr. Plummer, 652 Mission street, this city.

Round-trip tickets may be purchased at any point on the lines of the Southern Pacific system, at a *one-way* rate. The San Francisco and North Pacific has accorded a *one-way* rate to all who wish to visit the city to attend the American Medical Association and the Midwinter Dental Congress upon the presentation of a certificate to that effect. Such certificate may be had at this office.

With such inducements as are offered a generous attendance is confidently expected; indeed, no one who holds the progress and interest of the profession as he should—as his own—can afford to absent himself from these two great meetings which occur so conveniently for the attendance of both.

The American Medical Oral Section will be held at Odd Fellows' Hall the week beginning June 5th, and the Midwinter Fair Dental Congress at the Academy of Sciences Hall the week beginning June 11th.

THE Alumni Association of the University of California will hold its annual meeting and banquet during the middle of June. We mention the matter now that all may make their arrangements to be present.

MIDWINTER FAIR DENTAL CONGRESS.

THE meetings of the Midwinter Fair Dental Congress will be held at the Academy of Science Hall, 819 Market street, beginning Tuesday, June 11th, at 10 o'clock, and continue five days. The morning sessions after the first day will be given up to clinics, while the afternoon and evening sessions will be devoted to addresses, and the reading of papers and essays with their discussion. One day (Association Day) will be set apart for general enjoyment, and the committee-in-charge have a genuine holiday in store. They refuse to make their plans public, desiring instead to pleasantly surprise the guests of the city with the enjoyments of a day long to be remembered.

The first morning session will be very interesting, especially as it includes the election of the officers of the Congress, and the address of welcome from President James Phelan of the Midwinter Fair Auxilliary Congress, and the inaugural address of the President of the Dental Congress.

The membership list is growing rapidly, and from three to four hundred are confidently expected. *Send in your name now* to the Chairman of the Finance Committee, Dr. Harry P. Carlton, Crocker building, accompanied by the five-dollar fee for membership.

The Midwinter Fair Dental Club has secured some of the handsomest rooms in the city, corner of Post and Stockton streets, for the entertainment of the city's guests. These rooms are but a stone's throw from the Academy of Science, where the meetings of the Congress will be held; large and commodious, facing the beautiful lawns of Union Square, in the very heart of the city. The club-rooms will be elegantly and comfortably furnished, and visiting members are cordially invited to come there immediately upon arriving in the city. This will, aside from being a rendezvous for all, be a bureau of general information. Rooms will be secured in advance for guests upon application. No one feature of the Congress will be so thoroughly enjoyable as the Club.

MOST of the subscriptions to the PACIFIC COAST DENTIST will expire with this number. Don't fail to renew.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

WE wish to again inform all who anticipate becoming members of the American Medical Association, and also those who do not and ought to, that in paying the dues of the year and initiation ($5) the member is entitled to the *Journal of the American Medical Association* for one year. This is a weekly journal devoted to medical science, owned and published by the Association, the subscription price of which alone is five dollars, whether you become a member of the Association or not. The transactions of the meetings are published currently in its numbers, together with the best medical news and science. This alone is worth the membership fee.

THE Programme Committee has been exceedingly busy sending out letters, circulars and requests to members of the profession all over the Coast, and, in conjunction with Dr. Dunbar of the Invitation Committee, they have invited all reputable practitioners of the Coast and many of the East to write something for the Congress. Many flattering letters of encouragement have been received and the best of programmes is to be enjoyed.

The fact of there being so many papers does not necessarily mean that you need not write yours. There will be plenty of room for it, and it will be gladly welcomed by the Programme Committee.

If you do not choose to write a paper give a clinic; instruct the committee of your subject, and state when you desire to give it. Do something; don't be a wall-flower. "It is more blessed to give than receive."

We take pleasure in informing the profession that we will be honored by a visit during the Congress from such men as A. W. Harlan, J. Taft, W. C. Barrett, W. G. A. Bonwill, Eugene Talbot, J. S. Marshall, A. H. Thompson, J. S. Hollingsworth, and many others who we do not just now recall.

VISIT the Dental Club, 235 Post street. You will be sure to become a member.

IN a letter from Denver, Colo., we learn that the State Society will meet in that city June 5th, 6th and 7th. A good meeting is anticipated and a large attendance desired and expected. Some very important business is to be transacted, and above all in interest to us is the fact that a delegation will be sent to the Congress. (Just have the association adjourn as a whole to San Francisco.)

DR. F. F. TEBBETS, of Sacramento, was reappointed a member of the California State Board of Dental Examiners, May 8, 1894.

LOOKOUT for the daily edition of the PACIFIC COAST DENTIST.

DR. C. L. GODDARD has returned from a trip East.

RENEW your subscription.

NOTICES.

WASHINGTON STATE DENTAL SOCIETY.

The seventh annual meeting of the Washington State Dental Society will be held in Tacoma, May 24-26, 1894. All are cordially invited to attend.

P. H. CARLYON,
President.

A. S. OLIVER, Secretary.

THE COLORADO STATE DENTAL ASSOCIATION.

The Colorado State Dental Association will convene in Denver the first Tuesday in June and continue in session three days. A large attendance is very desirable, as important business is to be disposed of.

SARAH MAY TOWNSEND, D.D.S.,
Cor, Secretary, Denver.

AMERICAN DENTAL ASSOCIATION MEETING.

The following announcement and request, promulgated by Section One, A. D. A., is directed to the attention of the profession:

Dear Doctor: The next meeting of the American Dental Association will be held Tuesday, August 7, 1894, at Old Point Comfort, Virginia.

Will you prepare a paper for this Section on Chemistry, Crown Work, Orthodontia, Plates, Metallurgy, Obturators, Bridge-Work, etc.?

If there has been any new mechanical devices or novelties presented to your State or local societies since August, 1892, will you furnish this Section with them?

ALONZO BOICE, *Secretary*, R. M. SANGER, *Chairman*.
1612 Vine Street, Philadelphia, Pa.

COLORADO STATE BOARD OF DENTAL EXAMINERS

Will hold a meeting for the examination of applicants to practice dentistry in the State on June 6, 1894, in rooms 519-520 McPhee Building, Denver, Colorado, commencing at 10 A.M.

J. N. CHIPLEY, President.
C. N. GUYER, Secretary.

BOOKS.

The Etiology of Osseous Deformities of the Head, Face, Jaws and Teeth. By Eugene S. Talbot, M.D., D.D.S., Professor of Dental Surgery, Women's Medical College; Lecturer on Dental Surgery and Pathology, Rush Medical College, etc. Third edition; revised and enlarged, with 461 illustrations, 422 of which are original. Chicago: The W. T. Keener Company, 96 Washington street. 1894.

A grand work. A wonderful amount of scientific and highly interesting testimony tending to oppose the theory that irregularities of the teeth and jaws are the result of local conditions. The author extends his scope of inquiry into the departments of oral and nasal medicine, and surgery of the eye, face and ear. The author is too well known to need any introduction through these pages, as also are his masterly papers upon subjects kindred to the work above, which have been published from time to time in the various dental journals.

A Partial System of Dental Nomenclature. Chicago: C. W. Magill. 1894.

A pamphlet of fifteen pages upon the subject named adopted by the Northwestern University Dental School.

The Monthly Bulletin of the Connecticut State Dental Association has made its appearance, edited by the Secretary, George L. Parmele, and Charles McManus. It is the intention to keep the members informed on all matters of special interest and do away with the Year Book.

THE

Pacific Coast Dentist

DAILY EDITION. JUNE 11, 1894. VOL. II.–NO. 1.

ORIGINAL COMMUNICATIONS.

AMERICAN MEDICAL ASSOCIATION — ORAL AND DENTAL SECTION.

THE Section was called to order by Dr. Eugene S. Talbot, Tuesday afternoon, June 5th, at 2 o'clock.

The chairman, Dr. M. H. Fletcher, being unable to be present, Dr. C. L. Goddard was appointed to preside.

The Section was opened by the reading of the address of the chairman, Dr. M. H. Fletcher, of which the following is an epitome:

PROGRESS OF DENTISTRY.

The progress of dentistry is almost a synonym for advancement, especially in America. The changes in the past forty years have related more largely to the art than to the science of the profession.

The highest possible attainments in the art of dentistry cannot accomplish much without at least some knowledge of the science of the calling. Shakespeare has said, "There was never yet a philosopher that could endure the toothache patiently." As practitioners of dentistry we know this to be true. Now is the only relief from this most unbearable of maladies the extraction of the offending organ? To many so-called dentists, I am sorry to say, it is. To properly diagnose the cause and relieve the patient from pain requires a knowledge of the laws of health and disease, and these are only acquired by study of the facts brought to light, may be by empiricism, but most likely by the untiring labor of men who have given time, thought and labor to the subject, and in which they are truly interested, and this often means the sacrifice of money or health, and perhaps both.

An eminent physician who came to me as a patient this day asked: "With all the recent advancements in physiology, pathology and painless surgery, why is it that you dentists have not relieved your specialty of the horrors attending the most frequent operation which you are called upon to perform?" The only answer I could give was, that we simply lack the scientific advancement.

A recent decision of the Supreme Court of Missouri, to the effect that dentists are not exempt from jury duty, as are physicians and surgeons, is an index to the public estimate of our profession.

It is a healthy thing for us to see ourselves as others see us, especially if we wish to improve. How many real learned men have we in our profession? How many deserve the title of doctor? How many are capable of recognizing a scientific truth when it is presented to them?

When we have a large proportion of learned and thinking minds in the ranks of our specialty, instead of a small per cent, such a question asked by my friend, the doctor, would not be pertinent; but it is now. The future of dentistry, if she would hold her own, must progress on a broader line of culture.

I am not pessimistic on the subject. I am fully alive to the fact that dentistry has reached a most remarkable position for a growth of fifty years, and am justly proud of being a member of such a profession; but our advancement has been in much the same way as that of many other of the arts. We have some scientific truths established, and the combined experience of thousands of men for thirty years. Aside from these I know of nothing that has taken us beyond the advancements made in several of the mechanical arts.

Let us be educated to think scientifically, rob dentistry of some of its horrors, and employ practical prophylactic treatment for dental caries. The shortest and surest road to these desired ends is the proper mental training of the profession.

EMPYEMA OF THE ANTRUM AND HOW TO TREAT IT.

BY DR. EUGENE S. TALBOT, CHICAGO.

[Abstract from paper as read before the American Medical Association.]

GRAY says, "The antrum of Highmore, or maxillary sinus, is a large triangular-shaped cavity, hollowed out of the body of the maxillary bone; its apex, directed outward, is formed by the malar process; its base, by the outer wall of the nose. Its walls are everywhere exceedingly thin, its roof being formed by the orbital plate, its floor by the alveolar process, its anterior wall by the facial, and its posterior by the zygomatic surface."

This conclusion must have been formed after an examination of very few symmetrical skulls, since the author has been unable to verify this description in all cases after an examination of 6,000 antra.

In order that the cavity may be opened in the proper place and drainage procured we must possess some idea of its position and shape. I have examined skulls in which the shape of the cavity was just the reverse of that laid down by Gray. In others the antra were almost square with round corners.

Septa, bulgings, with corresponding depressions and deformities of adjacent cavities. Sometimes the outer wall of the nose will be bent into the antrum from .25 to .33 per cent of its space, and vice versa. The size of the cavity also cuts quite a figure in regard to its position and relation to surrounding parts.

In neurosis and degeneracy one antra may develop to such an extent that it will be twice the size of a normal cavity. In such cases it is not uncommon to find the nasal cavities forced to the opposite side, and the antra of that side only the size of the end of the little finger, and situated almost entirely inside the malar process. In such a jaw we should expect to find (in the case of the large antrum) a very thin wall, as described by Gray, but a far different condition exists upon the opposite side where the antra is very small. Here the walls are thick, and a drill would have to pass from one-half to three-fourths of an inch through the alveolar process to reach it all. Another condition, occasionally observed, is in cases of neurosis and degeneracy; the nasal cavities, situated either to the right or left of the face, crowd the antrum to one side, and bring the floor of the nose directly over the alveolar process; in this case a drill passed through the alveolus would penetrate the nose.

The author has observed two cases where dentists, in attempting to drill through the alveolar process into the antrum, with a view of draining it, actually drilled into the floor of the nose. In conversation with specialists on the nose and throat, I have been informed that they have seen similar cases. Again, in some cases, the antra are almost entirely obliterated. Frequently the antra are divided into compartments by bony septa occasionally dividing the cavity into two or more nearly complete cavities. In such abnormal conditions, it would be reasonable to suppose that the lowest point in the floor of the antrum would be difficult to find.

Difference of opinion exists as to the cause of empyema of this sinus. By some it is believed to be an extension of inflammation of the mucous membrane of the nose due to cold; by others, and especially by dentists, to alveolar abscesses. With a view of obtaining some facts in regard to this matter, some years ago, I made a special examination of skulls with the following results: Of 6,000 antra examined there were 1,274 abscessed molar teeth. Of this number 76, or about 6 per cent., extended into and apparently discharged into the antrum. Septa were found in 963 cases. In the treatment of 384 cases of pulpless teeth in connection with the superior molar in the past twenty-four years, only four cases of diseased antra were observed.

Dr. M. H. Fletcher of Cincinnati, Ohio, examined 1,000 antra, in which 252 upper molars had abscessed, making 25 per cent. Of the 252 cases, twelve perforated the antra. The doctor found in 224 cases of pulpless molars treated by him only one case of pus in the antrum.

We must conclude, therefore, that diseased antra are rarely due to abscessed teeth. On the other hand, owing to the unstable, abnormal development of the bony frame work of this cavity, which is always found in neurotics and degenerates, we would expect to find inflammation extending from nasal cavities into the antra (especially when the openings are large) as a result of cold. Neurotics and degenerates are much more liable to disease, particularly of the mucous membrane, than those who possess normal development. To drain this cavity, medical men, but more particularly dentists, have been in the habit of extracting teeth or the roots of teeth, and, when no teeth are present, drilling through the alveolar process in a perpendicular manner to reach the antrum. As has been shown, the antrum cannot always be reached by this procedure. From the extended examinations made by Dr. M. H. Fletcher and myself, both came to the same conclusion without the other's knowledge, that the best place to open the antrum was at the base of the malar process midway between the root of the second bicuspid and first permanent molar.

The author has been quite successful with a tube made of hard rubber (in the treatment of diseases of the antrum). They can be kept in stock at reasonable prices, softened in hot water, and molded to any position required. The flange can be trimmed to any shape and degree, and the tube cut at any length. The cheek holds it in position ; it can be kept perfectly clean and be readily adjusted when the opening is made through the alveolar process and fastened to a tube if necessary.

ALUMNI COLLEGE OF DENTISTRY ANNUAL MEETING.

The regular annual meeting and dinner of the Alumni Association of the College of Dentistry, University of California, will be held Thursday evening, June 14th.

As the meeting occurs during the session of the Dental Congress and on the same evening as the Commencement Exercises, the evening has been set apart on the Congress programme as "College night."

There will be a business meeting of the Alumni Association at 7 o'clock in the reception room at Odd Fellows' Hall for the purpose of electing officers for the ensuing year, and for the admission of members. The Commencement Exercises will be held in the hall at 8 o'clock, and the dinner at 10 o'clock in Maple Hall, Palace Hotel.

All graduates not already members will be welcomed to full membership upon payment of five dollars ($5.00). This will cover the expense of the dinner, initiation fee, and dues for one year. This meeting being held during the Dental Congress, and under circumstances of an exceptional character as to surroundings and attractions, it is confidently expected that the attendance will be larger than at any other time and worthy of the occasion. Places will be reserved for all who signify their intention of being present. It is understood that all who mail an acceptance will be charged the price of the dinner, whether present or not.

Tickets may be procured at the College Building or from Dr. Dunn of Oakland and from any member of the following Executive Committee:

Dr. H. G. Richards, Chairman	921 Sutter Street
Dr. W. Sylvester	Sixth and Mission Streets
Dr. Chas. E. Bauer	Post and Kearny Streets
Dr. Geo. N. Van Orden	14 Grant Avenue
Dr. M. R. Gambitz	Academy of Sciences Building

Dr. Wm. F. Sharp, President.............500 Sutter Street
Dr. Harold L. Seager, Secretary........536 Valencia Street

Yours very sincerely,
HAROLD L. SEAGER, D.D.S.,
Secretary Alumni Association.

COLLEGE OF DENTISTRY EXERCISES.

The commencement exercises of the College of Dentistry, University of California, will be held at Odd Fellows' Hall, Thursday evening, June 14, at eight o'clock.

ORDER OF EXERCISES.

OVERTURE, "Zampa,"............................ *Herold*
PRAYER.................................... REV. A. C. HIRST, D.D.
SELECTION, "Martha,"............................ *Flotow*
ADDRESS ON BEHALF OF THE FACULTY...................
.... JOSEPH D. HODGEN, D.D.S., '87
PARAPHRASE, "Die Lorelei,"..................... *Nesvada*
CONFERRING DEGREES OF DOCTOR OF DENTAL SURGERY..........
....MARTIN KELLOGG, A.M., L.L.D., President of the University
CONCERT WALTZ, "Artist's Life,"............. *Strauss*
BENEDICTION................................REV. A. C. HIRST, D.D.

GRADUATING CLASS.

Edward Ellsworth Baird,
William Henry Cavell,
McCoy Chappell,
Conrad Deichmiller,
John Alvin Gibbon,
Gilbert Fuller Graham,
Robert Frederick Gray,
Walter Simpson Jewell,
James William Likens,
William O'Rourke,
Henry, Powell, Jr ,
William Judson Taylor,
Leander Van Orden, Jr., M.D.,
Thomas Augustus Vogel,
David John Vogelman,
William Henry Wadsworth,
Walter Irving Wilcox,
Charles Calvan Wood.

The American Dental Society of Europe will hold its nineteenth meeting at Geneva, Switzerland. August 6, 7 and 8, 1894. Last year this annual gathering was omitted, as many members wished to attend the Columbian Dental Congress. American colleagues who may be taking a Summer vacation abroad are cordially urged to combine with their plans for travel and sightseeing a visit to their professional brethren in Europe and to join in the various exercises of the occasion. Members of the profession everywhere will be welcome. Programmes may be had on application to the President, Dr. L. C. Bryan, of Basel, or to the undersigned,

CHAS. W. JENKINS, Secretary,
No. 1, Sonnenquai, Zürich, Switzerland.

OFFICIAL PROGRAMME

OF

The Midwinter Fair Dental Congress

MONDAY, JUNE 11, 1894.

10 a.m.—Formal Opening of the Congress.

Address.. MR. IRVING M. SCOTT

Invocation.. REV. W. A. GARDNER

Address..................L. A. TEAGUE, Chairman General Committee

Roll Call of Members.

10:30—Election of Officers.

11:00—Address by..................PRESIDENT-ELECT OF THE CONGRESS

AFTERNOON SESSION—2 P.M.

Paper—" The Sheaths of Neumann and their Contents"
....A. H. SAWINS, Denver

Discussion opened by L. L. Dunbar, San Francisco.

Paper—" Loop Anchorage in Gold Fillings ".........
.... A. F. MERRIMAN JR., Oakland

Discussion opened by J. M. Dunn, Oakland.

Paper—" A Study of the Bicuspids ".........A. H. THOMPSON, Topeka

Discussion opened by C. L. Goddard, San Francisco.

EVENING SESSION.

7:30—Miscellaneous Business.

8:00 Paper—" Orthodontia," illustrated by stereopticon
.... D. R. WILDER, Los Angeles

Discussion opened by W. J. Younger, San Francisco.

Paper—" Chloroform Anæsthesia "...............A. H. FYNN, Denver

Discussion opened by E. L. Townsend, Los Angeles.

EDITORIAL.

WELCOME.

ON behalf of the San Francisco dentists the PACIFIC COAST DENTIST extends a cordial welcome to the dentists of the Pacific slope and our Eastern visitors.

On another page will be found the official programme of to-day, and it is with no little pride that the Programme Committee points to the character, versatility, and number of excellent papers and clinics in store for you, the personnel of their authors and the generous manner in which men of prominence have responded to the invitation to prepare essays for general edification. Each day's edition of this journal will contain the official programme for the day of its issuance.

The Committee of Arrangements have spared no pains in their endeavor to make this meeting a success. Auxilliary to their work, a Midwinter Fair Dental Club has been formed as a place of rendezvous for all—at 235 Post street, corner of Stockton—where the members of the Congress are welcome at any hour. On Wednesday the Congress will be entertained at the Midwinter Fair, and an elaborate programme for a general outing has been prepared by the Association Day Committee.

Thursday evening all are cordially invited to attend the commencement exercises of the College of Dentistry, University of California, at Odd Fellows' Hall, corner of Market and Seventh streets.

On Saturday an excursion on the bay and a bull's-head breakfast at Sausalito will be tendered the guests by the Dental Club.

Your attention is called to the most excellent exhibit of instruments, material, furniture, etc,, which has been made by the various manufacturing companies, and you are cordially invited to inspect the same at your leisure. Courteous gentlemen will be in attendance to explain and display all the very latest improvements in their line.

The clinics will be held in the infirmary of the College of

Dentistry, 18 Taylor street, on Tuesday, Thursday and Friday mornings.

The daily edition of the PACIFIC COAST DENTIST will be found at the clinical apartments, the Academy of Sciences and the Dental Club rooms. Copies will be gratuitously distributed at these places for the convenience and entertainment of our guests.

AMERICAN MEDICAL ASSOCIATION — ORAL AND DENTAL SECTION.

THE American Medical Association has just completed a most profitable and entertaining session.

San Francisco is proud of her selection as the meeting-place of this great body of scientific and cultured gentlemen, and through her able and energetic representative, Dr. R. H. Plummer, we feel that the American Medical Association has been equally proud of its grand meeting.

On Monday evening, June 4th, an elaborate banquet was tendered the American Medical Editors' Association and friends at the Palace Hotel, by Mr. R. E. Queen. About one hundred were present, and many good toasts were eloquently responded to. This was but initial, the forerunner of a perfect holiday of enjoyable entertainments — a reception given by the San Francisco County Medical Society; one by Prof. and Mrs. W. F. McNutt, Dr. and Mrs. McLane, the Faculty of Cooper Medical College, the Faculty of the Medical Department of the University of California, at the Mark Hopkins Institute of Art; a day and evening at the Fair; a luncheon to the ladies by Mr. Sutro; a drive through the Park and Cliff, and a grand excursion around the bay and luncheon at Mare Island.

The Oral section was comfortably and appreciatively attended, and, as Dr. Talbot remarked, the papers were of an excellent character and of unusual interest. The discussions, too, were able and thorough, very generally participated in and, on account of the subjects treated, of unusual interest.

Some seem to feel a little disappointment in that the attendance was not as large as they had anticipated, but Dr. Talbot assured them that the section was as well attended as usual, or most of the others; that it was not numbers that was so desirable as that all who came should actively take some part, as had been done.

The American Medical Oral Section has a mission to perform, and that mission does not lie in point of crowded attendance or gigantic membership, but in placing before medical men in the Transactions of the Association the views and practices of prominent and capable members of the dental profession to the end of mutual education.

It will be a long time before many of those who availed themselves of this grand meeting will have another similar opportunity, and it is plain to a casual observer that an inestimable amount of good has been done the profession of this Coast.

A YEAR OLD.

WITH this number the PACIFIC COAST DENTIST begins its second year. We feel that under the circumstances our life and success has been nothing short of wonderful. Every barrier of progress that could have been thrown in its path it seems has been encountered. In spite of all, we have not only weathered the storm, but we have prospered beyond the hopes of our most sanguine friends and promoters.

The subscriptions of most of our patrons have expired with the last number, and it is ardently hoped that not only all will renew, but that we may be able to double our list of subscribers for the ensuing year.

We feel no little tinge of pride in that the PACIFIC COAST DENTIST has done much to unite the profession of the entire Slope; that it has promoted a healthy and permanent interest in society work; that it has engendered in the lives and practices of not a small proportion of the profession a desire for greater zeal, more thorough study and ethical practice, and that the coming year will be marked by a proportionately greater good to the profession.

See to it that your name is on our new subscription books immediately.

DR. EUGENE S. TALBOT and Dr. W. G. A. Bonwill are with us from the East. While we feel grateful for their presence, and the stimulus they lend us, we are nevertheless deeply disappointed that others we expected are unable to be present.

THE S. S. WHITE MANUFACTURING Co. has installed an exceptionally fine display of their goods at the Academy of Sciences for the inspection of all.

THE WILMINGTON COMPANY have spared no pains nor expense in making a grand exhibit, which is a feature of the Congress.

ENTERPRISING Mr. J. W. Rooch is making an interesting display of the Revelation Bur under the microscope.

SUBSCRIBE for the PACIFIC COAST DENTIST immediately.

NOTICES.

Delta Sigma Delta Banquet.—The third annual banquet of the Delta Sigma Delta fraternity was held on Friday evening, June 1, 1894, at the Maison Dorée. Mr. H. H. Stephenson, of the senior class, officiated as toast master. The following toasts were drunk and appropriately responded to:

"The Fraternity"	Dr. W. F. Sharp
"The Faculty"	Dr. C. L. Goddard
"The Supreme Chapter"	Dr. H. P. Carlton
"The College"	Dr. L. L. Dunbar
"The Undergraduates"	Dr. L. Van Orden
"The Ladies"	Dr. W. J. Younger

The Odontological Society of Pennsylvania held its annual meeting May 12th, and the following officers were elected for the ensuing year:

President, C. N. Peirce; Vice-President, C R. Jeffries; Recording Secretary, A. W. Deane ; Corresponding Secretary, J. N. Bromell; Treasurer, J. H. Gaskill; Librarian, E. H. Neal; Executive Committee, L. A. Fought, F. L. Bassett; M. A. Stillwell; Editor, Joseph Head.

THE

Pacific Coast Dentist

DAILY EDITION. JUNE 12, 1894. VOL. II.-NO. 2.

MIDWINTER FAIR DENTAL CONGRESS.

FIRST DAY—MORNING SESSION.

ACADEMY OF SCIENCES HALL,
819 Market Street, San Francisco, June 11, 1894.

Meeting called to order by L. A. Teague, chairman General Committee, at 11 A.M., who introduced Supervisor J. G. James, who said:

Mr. President, Ladies and Gentlemen:—On behalf of the Mayor and Board of Supervisors, it is my pleasure to welcome you to our Golden State and metropolis. While it affords us great pleasure to welcome you, we do not forget that we have had occasion to place ourselves in your skilled hands and have had forced from us by a steady pull that we had neglected to cherish.

It is not too much to say that your profession has placed itself, in this and in European countries, with the highest and most useful of the honorable professions of the age.

It is my pleasure to commend you to the hospitality of your San Francisco brethren, who will do themselves honor in extending to you every possible kindness. We can only partially repay your profession what we owe by extending to you the freedom of the city.

This was followed by an eloquent address and formal opening of the Congress by Mr. Irving M. Scott, who recounted the history of the profession, welcomed the members of the Congress to the city, and extended an invitation to all who may choose to visit the Union Iron Works during their stay in this city. The tugboat "Rockaway" will convey those who desire to take advantage of this more than generous invitation to and from the works.

Dr. S. E. Knowles, vice-chairman of the General Committee, then introduced Dr. L. A. Teague, the chairman, who addressed the Congress as follows:

Mr. President, Ladies and Gentlemen:—Owing to the failure of the delegates sent to the American Dental Association last August to succeed in inducing that body to meet in San Francisco this year, came the inspiration from defeat—a Midwinter Fair Dental Congress. The project was placed before the Board of Trustees of the California State Dental Association, who taking an initiative move, sent out circulars to all reputable dentists on the Pacific Slope asking their co-operation.

As a result delegates were sent from distant points, a meeting was held and resolutions adopted creating the Midwinter Fair Dental Congress.

Having thus established the geographical lines from the confines of which membership and talent should be drawn, the proper committees were named to invite from Eastern cities members of the profession of national renown and distinguished accomplishments to participate in the work, and thus add additional interest to what we hope will be profitable and pleasurable to all.

Thus we have met to delve into a science infantile in years, but venerable in accomplishments ; a science that is an art preservative; a boon to humanity, which is growing more and more in need of its services year by year.

In recounting what the pioneers of this Coast had done for the profession the speaker said:

The combination of platinum with gold, known as colored gold, is the invention of Dr. Charles E. Blake of San Francisco. The crown facing of porcelain, backed with platinum shells for bridge-work, is also his.

The combination plate of rubber and gold is the invention of Dr. G. G. Cool of San Francisco.

The improvements in crown and bridge-work known as Richmond's were made by him while in San Francisco.

The rubber-dam was used by Dr. H. H. Pierson of Sacramento before Barnum gave it to the profession.

The bayonet root-canal drill was conceived by Dr. F. A. Brewer of Fresno.

The gold crown is the invention of Dr. J. B. Beers of San Francisco.

The cement, known first as osteo-plastic, was invented by Hauszweert of San Francisco.

To Dr. W. J. Younger, however, we are indebted for the greatest of all oral operations, that of implantation.

In conclusion, it is hoped that these meetings will bear fruit in many ways, that the benefits may fully compensate for the loss of time, trouble and expense of attendance.

The election of officers for the Congress was then had, which resulted as follows:

PRESIDENT.

Dr. William J. Younger	San Francisco, Cal.

VICE-PRESIDENTS.

Dr. Warren De Crow	San Jose, Cal.
Dr. F. H. Metcalf	Sacramento, Cal.
Dr. G H. Chance	Portland, Or.
Dr. F. W. Bliss	Santa Cruz, Cal.
Dr. E. L. Townsend	Los Angeles, Cal.
Dr. F. J. Biddle	Healdsburg, Cal.

VICE-PRESIDENTS—*continued.*

Dr. W. E. Burkhart	Tacoma, Wash.
Dr. W. G. A. Bonwill	Philadelphia, Pa.
Dr. Russell H. Cool	Oakland, Cal.
Dr. L. L. Dunbar	San Francisco, Cal.
Dr. P. T. Smith	Denver, Col.
Dr. Dunford	Salt Lake, U. T.
Dr. I. N. Demorest	Santiago, Chile
Dr. W. R. Bird	Los Angeles, Cal.
Dr. C. L. Goddard	San Francisco, Cal.
Dr. A. F. Merriman Sr.	Oakland, Cal.
Dr. J. G. Parsons	San Diego, Cal.

RECORDING SECRETARIES.

Drs. W. Z. King and C. E. Post	San Francisco, Cal.

CORRESPODNING SECRETARY.

Dr. W. C. Keith	Sacramento, Cal.

Adjourned until 2 P.M.

ORIGINAL COMMUNICATIONS.

ORAL MANIFESTATIONS IN ARTHRITIC AND GOUTY CONDITIONS.

BY PROF. L. L. DUNBAR, D.D.S., SAN FRANCISCO.

[Abstract from paper as read before the American Medical Association.]

FROM the mass of evidence presented I am of the opinion that we have erred as a profession in confounding a series of alveolar manifestations under one head. Ever since Dr. Riggs called professional attention to that condition of the dental alveoli known as "pyorrhœa alveolaris" and variously "phagedenic pericementitis," etc., the conditions of the oral cavity have been industriously studied by both dental and medical practitioners with the result that an entirely new classification of its diseases is impending. For nearly two decades it has been the custom of dental practitioners to ascribe every pathological manifestation in the alveolar region attended by elongation of the tooth, recession of the gums and wasting away of the peridental membrane to irritation caused by calculus deposits. Almost every practitioner who has been identified with the treatment of so-called pyorrhœa alveolaris has assumed the position that the condition is purely local in character, of undoubted calcic origin ; differing only in degree of inflammatory and destructive action as the individual constitution is strong or weak.

It is true that mercurial poisoning and scurvy were recognized in their effects upon the alveolar articulation; but these conditions were so rarely brought under the care of the dental practitioner that they cut no figure in the study of oral conditions. The influence of heredity was also recognized but just how this operated was not clearly understood. So calcic it was deemed to be, and as such it was treated; usually by instrumentation accompanied by local medication. That such treatment would suffice to remove some of the manifestations where due to calcific deposits at the gingivæ we all know, particularly when the habits of the individual have been changed by professional direction. But how many cases have been presented with no apparent cause for the condition which have baffled every effort to relieve when treated as a calcic lesion; in fact, how little is really known by the mass of practitioners of both medicine and dentistry of the phases of true calcific deposit or their significance. As is well known, by far the greatest proportion of calculus deposits are harmless, and their precipitation a perfectly natural process. How many realize, however, that there are forms pathognomonic of serious constitutional impairment, presenting in their manifestations diagnostic signs of great value?

The systemic connection in pyorrhœa has not been long recognized, the early writers on the subject in most cases adopted the views of Dr. Riggs and his treatment, as this involved asepsis, added to the alterative effect of the surgical treatment of the pockets and subsequent medication (usually a mild cautery), much good was done in the early stages of any alveolar lesion of whatever origin. Clinical evidence has not been wanting, however, of its prompt recurrence; in fact, such has been the experience of most practitioners; and many otherwise good men have openly declared that extraction was the only real cure. This has been used as an argument in support of the claim that the disease is local in character, its systemic connection being negatived by the fact that disorganization ceased when the tooth was lost.

Recent investigation will bring us to a full conception of its systemic connection as the local expression of a disturbance in the intercellular fluids. Modern investigation has illumined the domain of cellular morphology, and diseases of all kinds are being traced to their beginnings in the embryonic area.

Closely allied to such investigation is a study of nutrition and function.

The "theory of the connective tissue channels" advanced by Moleschott, in his Krieslauf des Lebens, which was indorsed by Virchow, is of interest in this connection. Moleschott says: "It is one of the grandest achievements of modern times, to the knowledge of which Von Recklinghausen and Virchow have paved the way, that the connective tissue has been raised from the secondary part, which at first was allotted to it, to one of productive activity—such as was never anticipated. What appeared formerly only designed as a protective covering or padding, appears now as the bed of the most minute and secret streamlets of juices or sap from the blood to the tissue, and back from these into the blood vessels. And at the same time as one of the most important *nidi* or breeding-place of new cells, which developed from the embryoni, early shapes, can rise to form the most peculiar and special structures of the body."

We lose sight of the fact that in the implantation of teeth in their alveoli we have an articulation; in most of its connective tissue relations, the analogue of any other articulation in the body, the same influences are at work here as in other members of the same group; and when we consider the nervous relations of the tissue we are prepared for the statement that the vaguely understood effects of *arthritis deformans* or *rheumatoid arthritis* may produce their peculiar distinctive effect in a degeneration of the peridental membrane and the alveolar periosteum as it does in the connective tissue of other articulations.

Doctors Garrod and Weber both ascribe the manifestations of arthritis to trophic influence, which may account for its appearance in one locality to the exclusion of other articular surfaces in their immediate neighborhood; as, for instance, in the joints of the plantar and palmar regions, and in the maxillary articulation. I submit, therefore, that in view of tissue relation, such manifestations may occur in the dental alveolar articulation.

I have seen such cases, and while presenting clinically much the same appearance that we have recognized as alveolar pyorrhœa, still an analysis of the animal fluids did not disclose the presence of uric acid.

Dr. Garrod called the disease *rheumatoid* arthritis, and gives many reasons for the adoption of this title, but does not lay as much stress upon its tropho-neurotic origin as Weber, who has had excellent results with the application of the galvanic current to the spine and cervical ganglia.

The morbid anatomy of this disease has been carefully studied by Volkman and Adams (see Garrod), and their observations show that "from the very commencement of the inflammatory action the articular cartilage begins to suffer; a slow process of absorption seems to take place; the cartilage splits up into fibers vertical to the surface of the bone; little depressions occur which at length coalesce, and the bone is left in part uncovered. As the disease progresses the whole surface may be thus denuded, the osseous surfaces brought in contact with each other, and in the movements of the articulations they become polished by friction, and an ivory-like condition, called 'eburnation,' is produced." This is the cause of the crepitation in joints so affected, and enables the practitioner to verify his diagnosis in differentiation with gouty or rheumatic affections. In the earlier stages the disease may be and often is confounded with these two last-named inflammations. An examination of the fluids and the progressive character of arthritis, if not arrested, will make diagnosis easy.

Where the manifestation is in the alveolar-dental articulation it probably has its origin in the trophic center in the spinal cord corresponding to the part affected, and I see no reason why this inflammation may not make its first appearance in the dental articulation as in any other articular surface. Of course, the pocket once formed, there is added those septic complications, varying with the habits of the individuals affected, that produce a likeness and make the difficulty of diagnosis greater.

When a better knowledge of the nervous relations of the teeth has been acquired, I feel quite certain that many doubtful oral conditions will be better understood and properly classified.

In reference to gouty manifestations in the oral cavity, the recently published results of the investigations of Doctors Peirce, Kirk, Burchard, Faught and others furnish such a fund of information upon the subject as to leave no doubt in regard to the effects of retained uric acid in the circulating fluids. In the light of the before-mentioned theory of Moleschott, we can understand how the peridental membrane may become the seat of such deposits as urates of lime and soda. The office of the membraneous group represented by the periosteum and pericementum is the deposition of lime salts. In mild inflammatory conditions not accompanied by pervision of the circulating fluids there is developed an activity in the pericementum that results in an increased deposition of cement beyond the typal limits of the root, in similar inflammations of this membrane caused by or accompanied with an excess of urates in solution in the circulatory fluids we can understand how a deposition of salts of calcium may be made that would show upon analysis the presence of urates; indeed, we have no assurance that the presence of morbific materials in the blood would not cause the specific inflammation that induces the deposit with its inflammatory coloring. In my experience the deposit known as serumal calculus is not removable by any means at our command that would not be equally destructive to the surrounding tissues.

In pockets of long standing freely accessible to the fluids of the mouth and to oral debris, there may be an added deposit on the surface of a root in a granular form that is removable; this, however, is only manifested in the last stages of the disease when re-attachment is doubtful.

Where the pocket is manifested on but one side, and all removable deposits have been carefully taken away, I do not think that the loss of that limited area of peridental membrane offers any barrier to the return to health of the surrounding tissue and entire attachment of the tooth.

How much the uric acid diatheses has to do with other destructive oral manifestations has not been determined, but I am convinced that some specific acid condition of the circulatory fluids is the cause of that mysterious wasting away of the enamel so frequently met with, and which, in description of what really occurs, we denominate erosion.

What we now recognize as alveolar pyorrhœa in its several manifestations I have shown, or endeavored to show, to be due to any one of two or three systemic conditions requiring a different classification, and a nomenclature suggesting in part its origin; when this has come to be scientifically developed an entirely new system of treatment for each will be evolved. Already the study of this subject by dental practitioners has been the means of introducing an entirely new salt of lithium as an addition to the materia medica. I refer to the preparation known as tartar-lithene, or tartrate of lithium.

What the dentist can do for these conditions will depend upon his preparation for practice, and his conception of its scope. Certainly, instrumentation is not to be entirely relied upon. Primarily, this was designed to be only a process of cleansing, and not instrumentation in its surgical sense. To be entirely successful, therefore, means a wider knowledge of systemic conditions and the ability to recognize the pathological significance of every oral lesion.

STATE BOARD OF DENTAL EXAMINERS.

The California State Board of Dental Examiners met at the Dental Club, Saturday evening, June 9th. Licenses to practice in California were granted to the following upon endorsement of diplomas:

George W. Rodolph	Oakland.
Wm. M. H. Burfriend	San Francisco.
J. M. Dunn	Oakland.

J. D. HODGEN, D.D.S., *Secretary.*

OFFICIAL PROGRAMME
OF
The Midwinter Fair Dental Congress

TUESDAY, JUNE 12, 1894.

MORNING SESSION—10 A.M.

CLINICS

AT THE COLLEGE OF DENTISTRY, UNIVERSITY OF CALIFORNIA,
Corner of Market and Taylor Streets.

W. F. SHARP, Master of Clinics.

1. "Ether Clinic with Original Inhaler," with a case of Ankylosis, presented by W. G. Wallace, Stockton, ...E. L. TOWNSEND, Los Angeles
2. "The Immediate Extirpation of the Pulp" .... J. C. McCOY, Santa Ana
3. "Ambidextrousness" .... F. H. METCALF, Sacramento
4. "Amalgam Filling" .... W. G. A. BONWILL, Philadelphia
5. "Combination Filling, Gold and Amalgam" .... RUSSELL H. COOL, Oakland
6. "Continuous Gum Denture" ...... J. S. KNOWLTON, San Francisco
7. "The Jackson Crib" .... C. L. GODDARD, San Francisco
8. "Anchored Plates" .... E. R. VAUGHN, Colorado
9. "Shell Jacket Crown" .... J. E. CUMMINGS, San Francisco

AFTERNOON SESSION—2 P.M.

1. "The Conservation of Interdental Space" ....E. A. LUNDY, Hongkong, China
   Discussion opened by F. W. Bliss, Santa Cruz.
2. "Duty and Progress" ....F. H. METCALF, Sacramento
   Discussion opened by E. L. Lane, Portland, Or.
3. "Practical Suggestions" ... . CHAS. E. FRANCIS, New York
   Discussion opened by J. C. McCoy, Santa Ana.
4. "The Extent of Recuperation in Dental Erosions" .... W. E. BURKHART, Tacoma
   Discussion opened by F. L. Hicks, Tacoma.

5:30—Adjournment.

EVENING SESSION—8 P. M.

1. "The Relation of Dentistry to General Medicine" ....GEO. H. CHANCE, Portland, Or.
   Discussion opened by S. E. Knowles, San Francisco.
2. "Affection of the Jaws in Locomotor Ataxia" ....LEO. NEWMANN, San Francisco.
   Discussion opened by W. G. A. Bonwill, Philadelphia.

ALUMNI DINNER.

It is ardently hoped that every member of the Alumni Association who can possibly attend the banquet will do so. Every preparation is being made to make this event the finest ever given.

NOTES.

A CORDIAL invitation is extended to all the members of the Congress to attend a luncheon to be tendered them by the President, Dr. Wm. J. Younger, at the Bohemian Club, corner of Grant avenue and Post street, Thursday, June 14th, at 12 o'clock. Members will meet at the Academy of Sciences Hall and adjourn to the Club.

J. H. A. FOLKERS & BRO. extend a cordial invitation to all to visit their establishment at 815 Market Street, Academy of Sciences Building. They take justifiable pride in the completeness of their stock of dental and surgical instruments.

THE S. S. WHITE CO. call especial attention to their display of teeth, of which they have some two thousand moulds, in addition to a number of specimens from their exhibit at the Columbian Exposition.

THE WILMINGTON DENTAL MANUFACTURING CO. exhibit has created considerable comment by the beauty of its arrangement as well as by the display of the workmanship and finish of the goods shown.

THE HARVARD COMPANY of Canton, Ohio, have on exhibition their high-low base chair and dental cabinet.

WHILE you are so convenient to J. W. Rooch's depot call and examine his stock.

SUBSCRIBE for the PACIFIC COAST DENTIST immediately.

NOTICES.

Chicago College of Dental Surgery, Dental Department of Lake Forest University, held its twelfth annual commencement at the Columbia Theatre, Chicago, on April 30, 1894. Number of matriculists for session, 360.

GRADUATES.—Carl Otto Bauth, Illinois; Frederick H. Burkhardt, Illinois; John Roy Brown, Illinois; Frank H. Baker, Illinois; Herbert Brockett Cole, Michigan; Ewald Henry Czolbe, Illinois; Arthur Preston Davis, Wisconsin; George Hiram Denison, Indiana; Arnold Ernest Dick, Hungary; Orlan Thomas Eddy, Illinois; Walter Washington Eberhardt, Minnesota; George Harrison Edgerton, Illinois; Eno Louis Fickensher, Illinois; William Clarence Gowan, Canada; Robert Charles Gebhardt, Wisconsin; Joseph Edward Grattelo, Illinois; George Washington Harris, Minnesota; Franklin Reuben Houston, Wisconsin; Alfred Lincoln Haas, Iowa; David Arthur Hare, Canada; Ralph Waldo Harrold, North Dakota; Albert Matthew Harrison, Illinois; Fred John Randolph Hemple, Michigan; Edward Hicks Hickman, Illinois; Charles William James, Illinois; John Wesley Johnson, Canada; John Kintzing Kane, Illinois; Carl Robert Kuderling, North Dakota; George Richard Lee, Illinois; Benedetta J. La Grange, M.D., California; Samuel Edgar Leece, Wisconsin; Elsie Henry Leib, Illinois; Charles Costello Mann, Washington; Alexander Orno McBean, Wisconsin; Arthur D. O'Neill Jr., Illinois; John Ernest Pollack, Illinois; Milton Barmore Pine, Indiana; Ceylon Rossman, Minnesota; Jasper Meston Revell, Canada; Ruger Carroll Stevenson, Wisconsin; Frederic B. Skillman, Illinois; William Franklin Saunders, Wisconsin; Chester Garnett Stinson, California; Thomas Sheridan, Illinois; Floyd Sykes, Wisconsin; Frank Smith, Illinois; Alfred Batchelder Sargent, Minnesotta; Charles Lewis Thomas, California; Lewis Peter Voss, Illinois; Charles George Read Wright, Illinois; George Wallace Winslow, Indiana; John James Wright, Wisconsin; Joseph Shelby Wright, Missouri; Henry Learned Whipple, Illinois; Simon Frank Wilhelmi, Illinois; Thompson Francis Wheat, Illinois; Charles Madison Wesner, Illinois; Charles Henry Wylie, Wisconsin.

The Northwestern University Dental School commencement exercises were held April 24th.

GRADUATES (24).—Lucian Hauch Arnold, William Spencer Bagley, Samuel Agustus Bell, Edwin Kenton Bennington, Leander Read Brown, Louis Arthur Edwards, Charles Herbert Eldred, Benjamin Franklin Ells, Frederick Wilhelm Fritsche, Robert Leslie Hopkins, Philip Freeman Kittoe, Louis Ladewick, William Lansing Lewis, Fred William Marriette, Paul George Maxon, Abraham, Louis Oberndorf, Casper Paul Plaff, Hosea Edwin Reid, Charles Mackay Smith, Edward Henry Smith, Claude Bryant Warner, Aurin Ralph Shaw, Herbert Devere Wilson, Charles Caspri Lipe.

KALEIDOSCOPIC.

Plaster of Paris.—The method of testing the quality of plaster of Paris is by taking a small pinch of the powder between the thumb and finger and gently rubbing it; if small particles of grit are felt, it indicates that parts of the plaster have already absorbed water, and it is therefore unfit for use. The same test may be observed by taking a pinch of the powder again and placing the fingers under water, and then rubbing in the same way as before. If, however, in both of these tests no grit is felt, and under water a thin, creamy substance is formed, which is easily rubbed off the fingers, the plaster is in a proper condition for use. Where plaster has been kept for a long time, or where it is gritty, its condition can be very greatly improved. It may be redried by putting it in a metal dish, such as a pie-plate or an iron pot, and placing it in an oven of a hot fire or over a gas jet. As soon as it becomes heated it will be observed that a process identical with boiling water is taking place. When this ebullition has entirely ceased, the powder is freshly kiln-dried. If the method of testing is again resorted to, it will be found that the gritty appearance and feeling have disappeared, in a very large mesure, leaving only the fine dry powder ready for use. If there are any lumps remaining, they may be removed by the use of a sieve. From what has been already said, it will need be but a reminder that the plaster of Paris must always be kept in a hermetically-sealed jar, or in a very dry place.—*Charlotte Medical Journal.*

Extensive Alveolar Abscess.—One of the fortunately rare cases of alveolar abscess invading the neck is reported by Dr. Maughan in a recent number of the *British Journal of Dental Science*. The patient was an artisan aged forty-five, and there was a history of four or five previous swellings over the upper and lower jaw. When seen he had been suffering for ten days from a swelling on the left side of the neck —red, painful, hot, and throbbing. There was a large fluctuating swelling on the left side of the neck, extending downward to the left clavicle and across the root of the neck to the right side and upward to and involving the left lower jaw. The cause was plainly periostitis around the second left lower bicuspid. An incision gave vent to two saucerfuls of pus, and the wound rapidly healed under antiseptic dressings. As a general rule alveolar abscesses discharge into the mouth either by perforating the alveolus, usually the onter, it being the thinner, or the pus wells up around the neck of the tooth, the periosteum being stripped off the cementum, but occasionally they burrow for a considerable distance. In this case the cause of the abscess was evidently influenced largely by the anatomical relations of the cervical fascia. Very few similar cases are, we believe, recorded in dental literature, but perhaps they are not so uncommon as this fact would represent, since they would be more likely to come into the hands of the surgeon than the dental practitioner —*Lancet.*

THE
Pacific Coast Dentist

DAILY EDITION. JUNE 13, 1894. VOL. II.-NO. 3.

MIDWINTER FAIR DENTAL CONGRESS.

ACADEMY OF SCIENCES HALL,
819 Market Street, San Francisco, June 12, 1894.

MONDAY—AFTERNOON SESSION.

The general session was opened at 2 P.M., Dr. William J. Younger in the chair, who, instead of making a formal address, thanked the members for their kindness in conferring upon him the presidency, and opened the session by calling for the papers as the programme demanded.

THE EVENING SESSION

was a continuation of papers with their discussion, all of which will be published currently in the PACIFIC COAST DENTIST.

TUESDAY—SECOND DAY.

MORNING SESSION.

The morning was devoted to clinics at the College of Dentistry, 18 Taylor street.

Dr. E. L. TOWNSEND gave a clinic upon ether anæsthesia with an original inhaler.

The case operated upon was one of ankylosis.

The history of the case is as follows: A dentist in the endeavor to extract a left lower wisdom tooth, broke it off, leaving the roots in their socket. For nearly four months following this the patient felt no pain or inconvenience. She then noticed a difficulty in separating the jaws. The stiffness about the same increased until the teeth could not be separated more than an eighth of an inch. At the end of April, this year, the case was examined by two physicians of this city who concluded that there was some irritation about the tooth that had caused the attack of trismus. There appeared to be a slight swelling about the bone on the left side. The trismus of course interfered with an ocular examination of the case. About two or three weeks after this an abscess broke, emptying its contents into the mouth, which was followed by considerable improvement in the symptoms, until the trismus had nearly disappeared. About two weeks ago, however, the patient took cold at a swimming bath in San Francisco and trismus returned. There being apparently no muscular atrophy present, it was supposed to be a case of peripheral affection of a part of the fifth nerve.

The case in clinic, Dr. E. L. Townsend, of Los Angeles, administering the ether, and Dr. W. F. Sharp operated, but found nothing but bone tissues, not being able to locate the roots which it was supposed were remaining.

Dr. John C. McCoy, of Santa Ana, held a clinic on the immediate extirpation of the pulp. The teeth operated upon were the right superior second bicuspid and first molar, using a 10 per cent. solution Boheringer Bros'. hydro chlorate of cocaine. The hemorrhage was stopped with distilled extract of witch-hazel. All injections were made with a round-tipped flexible syringe-needle. After the pulps were removed the canals and chambers were immediately filled in the usual manner.

Dr. J. S. Knowlton a cliniced upon a continuous gum-case.

Dr. C. L. Goddard made a Jackson crib.

Dr. Bonwill's clinic was two gold fillings, one in the first and the other in the second superior right bicuspid.

The first was involved from its anterior proximal through the medium and including the entire post-proximal surfaces. The pulp was not exposed and needed no protection. This was filled with Abbey's No. 20 gold foil, using the mechanical mallet, and without change of the point, in twenty-five minutes requiring one and a half books of foil (3-16 of an oz). The caries in the second bicuspid involved the whole anti-proximal, coronal and distal surfaces. This was inserted by the use of two different points in the mechanical mallet, consuming nearly one book of foil and completed in fifteen minutes.

The Doctor also showed his application of pink gutta-percha to contour on proximal surfaces, involving much loss of structure, to act as a separating medium, the same to remain from one, six or twelve months to secure proper space. He called it his "sheet-anchor," and uses it almost exclusively in children's teeth, and in many cases permanently for adults.

OFFICIAL PROGRAMME

OF

The Midwinter Fair Dental Congress

WEDNESDAY, JUNE 13, 1894.

Association Day.

All who desire may spend an enjoyable time at the Exposition as a day set apart for the dentists. Tickets will be gratuitously furnished the visiting members and their ladies by Dr. A. F. Merriman, Jr., Chairman of the Association Day Committee.

For those who prefer visiting the Union Iron Works, Mr. Irving M. Scott has generously tendered the use of his tugboat "Rockaway" to meet the party at Mission-street wharf, Pier 1, at 10 o'clock this morning.

EVENING SESSION.

7:30. *Paper*—"A New Era in Dental Progress"............ ....DR. W. G. A. BONWILL, Philadelphia

Paper—"Composite and Combination Fillings"............ ....J. FOSTER FLAGG, Philadelphia

Read by W. F. Lewis, Oakland.

Discussion opened by S. J. Barber, Portland, Or.

Paper—"An Obturator in Connection with a Superior and Inferior Denture"........ ....A. F. MERRIMAN, Sr., Oakland

MEMBERS OF MIDWINTER FAIR DENTAL CONGRESS.

REGISTERED UP TO TUESDAY.

Allen, R. H	Oakland
Argall, F. L	San Jose
Asay, J. L	“
Avery, Wm. N	“
Anderson, R. W	Honolulu
Ashworth, F. P	San Francisco
Baldwin, C. V	Los Angeles
Bird, W. R	“
Bills, A. V	San Diego
Buell, H. C	“
Barnes, F. J	“
Bryant, Wm. A	San Francisco
Boyd, S. A	“
Bush, C. G	“
Brown, A. V	“
Boxton, Chas	“
Brewer, B. B	“
Burfiend, Wm. M. H.	“
Bush, L	“
Blake Sr, C. E	“
Brooks, W. E	Oakland
Boyes, H. D	“
Barber, S. J	Portland
Blodgett, J. M	Lodi
Boon, N. J	Red Bluff
Burkhart, W. E	Tacoma
Bethel, F. J	Bakersfield
Bliss, F. W	Santa Cruz
Bliss, C. L	“
Barker, A. M	San Jose
Bogart, S. C.	San Bernardino
Bennett, A. G	“
Cave, D	San Diego
Cummings, J. E	San Francisco
Curragh, J. M	“
Cane, A	“
Carlton, H. P	“
Cahill, S. D	“
Corbiere, C. C	“
Clark, W. H	“
Crawford, J. S	Los Angeles
Comes, J. E	Visalia
Copsey, H. B	Ukiah
Case, E. G	“
Carpenter, O	Oakland
Craig, W. H	“
Collins, M. J	“
Corwin, Cecil	“
Cool, Russell H	“
Craig, Mrs. M. W	“
Cooper, J. C	Fresno
Chance, Geo. H	Portland, Or.
Churchman, Ney	“
Conwell, C. C	Virginia City
Campbell, R. E	Woodland
Couch, F. L	Selma
Carr, C. M	Salt Lake
Combs, H. M	Visalia
Dunbar, L. L	San Francisco
Dohrmann, Wm. F.	“
Davis, Henry C	“
Dennis, C. C	“
Dunn, M. J	“
Dunn, J. M	Oakland
Demmick, J	“
De Crow, W	San Jose
Davy, J. W	“
Dungan, G. A	Eureka
Demorest, I. N	Santiago, Chile
Edwards, J. W	San Francisco
Eddy, E. D	“
Erhardt, P. C	“
Eastman, W. W	Sonoma
Frazer, T. J	San Francisco
Fletcher, Thos.	“
Ford, L. E	Los Angeles
Fisher, F. H	Oakland
Fare, John T	“
Farnman, C. H	Napa
Flemming, C. K	San Jose
Frazer, J. A	“
Finnegan, L	“
Fickett, S. H	Stockton
Goddard, C. L	San Francisco
Goe, S. E	“
Guisti, J. J	“
Greenlaw, Mayo	“
Gaston, A. A	San Jose

Gray, G. W	San Jose
Gallup, F. E	“
Geiarday, W. O	Sacramento
Gilman, S. F	Oakland
Grant, John T	Woodland
Harbinson, H. R	San Diego
Hooker, A. H	“
Hays, A. P	Los Angeles
Hammell, Annie R	“
Hendricks, P	“
Hendricks, H. F	Hartford
Hodgen, J. D	San Francisco
Hipkins, H	“
Hibbard, C. W	“
Hedrick, L	“
Hultberg, F. L	“
Hackett, F. M	“
Hatch, J. H	“
Hill, Thomas	“
Hart, A. C	“
Harrison, Mrs. E. L.	“
Haines, B. W	“
Hays, I. W	Grass Valley
Hutton, J. H. D	Berkeley
Hicks, F. P	Tacoma
Hamilton, C	Eureka, Nev
Hodghead, W. H	Ukiah
Hibbard, L. E	Portland, Or.
Holden, T	Marshfield, Or.
Hyde, A. T	Merced
Hooker, A. O	San Jose
Halsey, I. S	Oakland
Halsey, W. H	“
Hackett, S. A	“
Hall, T. W	“
Holmes, L. B	Woodland
Iglehart, Thos. N	San Francisco
Inglish, W. C	Vacaville
Jackson, Wm	Grant Pass
Jones, H	Cloverdale
Knepper, G	Los Angeles
Kestler, F. H	Sacramento
Knowles, S. E	San Francisco
Knox, Henry E	Oakland
Knowles, W. A	“
King, W. Z	“
Knowlton, J. S	“
Lawden, W. D	Los Angeles
La Baree, W. H	Weaverville
Lewis, Walter F	Oakland
Lane, C. S	“
Litchfield, O. J	Sebastopol
Lundy, E. A	China
Lemon, G. B	Salinas
Ledyard, F. K	San Jose
Lawrence, Geo. Otis	San Francisco
Lundborg, J. A. W	“
Millard, G. A	Los Angeles
Moore, H. W	Santa Barbara
Millberry, A. H.	San Francisco
Morton, H. R. Sr	“
Morffew, Thos	“
McCarthy, J. P	“
McFayden, A	“
McKenzie, A. W	“
McQuithy, Wm. A	“
Myers, O. P	“
Metcalf, Fred. H	Sacramento
Millikan, C. F	“
Merriman, Jr. A. F	Oakland
Merriman, Sr. A. F	“
Meek R. W	“
Meseroll, J. M	Stockton
Morries, A. H	Alameda
Maynard, C. C	San Jose
Mann, J. C. Mrs	“
Moore, W. A	Benicia
McCowen, Geo	Ukiah
McCoy, J. C	Santa Ana
McElory, Miss C. M.	San Quentin
Meyer, G. A	Modesto
Noble, H. D	San Francisco
Newman, L	“
Nevins, G. F	San Jose
Nash, D. E	“
Odermatt, F. A	Tucson, Ariz.
O'Leary, Chas. M	Portland
Parsons, J. G	San Diego
Parker, F. M	Los Angeles
Porter, E. M	Napa
Prather, W. J	Fresno
Payne, C. S	San Francisco
Post, Chas. E	“
Pratt, E. W	“
Pague, F. C	“
Pancoast, Franklin	“

Price, W. E	San Francisco
Parks, E. E	"
Platt, E. W	"
Platt, F. L	"
Packard, C. W	Riverside
Perkins, Chas. O	Petaluma
Parker, J. P	Santa Cruz
Read, W. S	San Diego
Reynolds, P. R	Santa Ana
Requa, H. D	Los Angeles
Reed, Thos. B	Sacramento
Root, W. A	"
Reith, W. C	"
Richards, H. G	San Francisco
Regensburger, A. T	"
Reitzke, G	"
Roberts, S. H	"
Robinson, John	"
Rodolph, Geo. W	Oakland
Rabe, J	"
Rodolph, Chas. T	"
Relley, J. W	Grass Valley
Spinks, M. E	Los Angeles
Semler, Ludwig	"
Schumacher, F	San Jose
Southworth, E. L	Sacramento
Stephenson, C. H	"
Shaw, Ira G	"
Stall, B. F	"
Sullivan, N. F	Oakland
Saxe, F. J	"
Shuey, G. E	"
Sabin, C. R	St. Helena
Sichel, Max	San Francisco
Steele, D. L	"
Sullivan, M. J	"
Sharp, W. F	"
Sieberst, W. H	Sad Francisco
Seager, H. L	"
Schlott, E. F	"
Sloat, C. F	"
Summers, R. A	"
Townsend, E. L	Los Angeles
Taber, M. E	Riverside
Tebbets, F. F	Sacramento
Thomas, A. J	"
Timerman, E. C	Oakland
Taylor, W. E	"
Tate, Jr. S. P	"
Thomas, J. T	Virginia City
Teague, Luther A	San Francisco
Teague, Frederick	"
Van Orden, L	"
Van Orden, G. N	"
Vidaver, A. J	"
Wells, L. W	Los Angeles
Wassman, Max	"
White, J. M	"
Wood, W	Sacramento
Weldon, E. J	"
Wilson, O. F	Oakland
Whitney, J. M	Honolulu
Wassman, J. C	San Jose
Worrell, Geo. H	"
Westphal, O. F	San Francisco
Wallace, A. H	"
Warner, A	"
Winter, J. W	"
Wyatt, M. O	Winters
Wilder, D. R	Los Angeles
Younger, W. J	San Francisco
Younger, E. A	"
Ziegler, C. L	"

Total, 257.

ORIGINAL COMMUNICATIONS.

THE TEETH OF OUR SCHOOL CHILDREN; WHAT CAN BE DONE TO SAVE THEM?

BY JOHN C. M'COY, D.D.S., SANTA ANA.

[Abstract of paper read before the American Medical Association.]

NO doubt this question has been asked by every intelligent practitioner. Those who live in small cities or towns, and practice for all classes of society, have a better opportunity to know the condition of the teeth of the masses, than does our metropolitan brother, with the aristocratic patient.

Ignorance and neglect go hand in hand, and are the cause of more diseases and of the loss of more teeth than all other causes combined.

For the past ten years my practice has been in a community that numbers among its citizens many persons of culture and refinement. Others whose exterior appointments of life are all that could be desired, and whose children are being trained in all the arts and sciences of the day, except that of cleanliness of the mouth. We have thousands of this last class. I have examined and worked for hundreds of them in the past ten years. The ignorance on the part of the parents, and neglect on the part of the children who know better, is one of the wonders of the nineteenth century.

In one school of seven hundred pupils, five hundred from ten to eighteen years of age, I distributed printed slips with the following questions :

Do you cleanse your teeth with a brush every day?

Do you cleanse your teeth with a brush twice a day?

The teachers requested the students to answer the questions by writing the word "yes" or "no," to each question. The slips were immediately gathered up. On summing up it was ascertained that out of five hundred pupils, fifty cleaned their teeth twice a day; two hundred and seventy-five used the brush sometimes; while one hundred and seventy-five did not own a brush. Notice, the ages were from ten to eighteen. In the primary department of two hundred pupils from six to ten years of age, the teachers say they did not think there were ten children in the department who used a tooth brush.

This school is not an exceptional one in this manner, as further inquiry and investigation demonstrated. In fact its graduates take high rank at our universities, and if there is any difference, it is in advance of most schools in percentage of those who have clean mouths, as well as neat clothes and bright faces.

When there is so much neglect and so little real care of the mouth, it is not strange that the sixth molars have to be sacrificed daily, because the patients cannot go to the expense of treatment to have them preserved, thinking all the time that this most valuable tooth is deciduous and soon to be replaced by one that is bacteria-proof and will last forever in a mouth that has never been properly cleansed.

The school of seven hundred pupils mentioned, where only fifty made any pretense to regularly care for the teeth, shows what a field for instruction and training every teacher has. What an opportunity for philanthropy and missionary work!

The question before us is: What can we do to save the teeth of our school-children?

American dentistry leads the world to-day, and the world justly honors us for the great advances we have made in the preservation of teeth; but the fact still confronts us that millions of teeth are annually lost in America that need not have been sacrificed if proper care and cleanliness of the mouth had been commenced in childhood and continued to man or womanhood.

The dentists of America must solicit the aid of the public-school teacher. With their co-operation we can reach and train millions of children. A majority of the children of our land are in our public schools. They are under the teacher's instruction—from five to seventeen years of age. If the teachers were required to instruct and train the children in the proper care of their teeth, and insist upon their carrying out such instructions practically at home, we would have accomplished—or at least begun—a great work.

How can we bring this matter prominently before the educators of our land and secure their hearty co-operation?

I hope this Association will pass a resolution indorsing the plan, and by its sanction give prominence to its importance.

Let the dental and medical press advocate it. Let each State Dental Association not only pass resolutions on the subject, but appoint a competent committee to arrange a manual on the subject of the care of the teeth. Let the same committee induce the State Board of Education to adopt such a manual as a text-book to be used by teachers, and taught in our normal schools, requiring teachers to be able to pass an examination upon the contents of such a manual, and then require them to carry out such instruction in their respective schools. May each one of us constitute himself a special committee to see that the spirit of this paper is carried out practically in the schools of our neighborhood.

EDITORIAL.

THE FAIR.

THE San Francisco Midwinter International Exposition is now nearing its close. That it has been a success is accredited even by those who feel no good will toward it nor friendship towards its management.

As it is the third international exposition of the world in point of grandeur, attendance, architecture and scope of display, every Californian, and for that matter, every resident of the Pacific Coast, should have its interest and success at heart; and, of course, all desire to enjoy it as thoroughly as possible.

The Association Day Committee has caused to-day to be one for the entertainment of dentists at the fair, and will furnish tickets of admission to all visitors and their ladies who desire them. The five great buildings cannot be properly "done" by the systematic sight-seer in as many weeks, but a very enjoyable and profitable day can be had by spending a short time in the halls of Fine Arts, Liberal Arts, Machinery, Horticulture and Agriculture, and the County buildings.

A promenade about the grand court, with its electric tower, fountains, statuary and gorgeous lawns and flowers, is a sight never to be forgotten. A handsome and well-equipped restaurant or café is located at each corner of the quadrangle where substantial and enjoyable luncheons may be had *a la carte*, in American, French, German or Italian style, at a reasonable figure. There are also numerous other places where a party may go, spread their own luncheon and enjoy a cup of good coffee, tea or chocolate.

The "Midway" abounds in sideshows and catch-penny attractions of every description and nationality, many of which are not worth the mere bagatelle they charge for admittance. Among those perhaps the most interesting are the Firth Wheel, the Colorado Gold Mine, Scenic Railway, Mystic Maze, Boone's Arena, '49 Mining Camp, Foote's Museum, Haunted Swing, Japanese Theatre, Ostrich Farm, Streets of Cairo, etc.

The Fair, as a whole, is more beautiful during the evening illumined by thousands of arc and incandescent lights, the electric tower, and fountain, together with the usual pyrotechnic display and music; it is indeed a veritable fairy land.

Sutro Heights, baths, the Cliff House and seal rocks are but a short distance beyond the fair grounds through the park or by train at the south gate, and to those who enjoy nature and art no more enjoyable spot could be found.

PUBLISHERS' NOTICE.

THE EXHIBIT OF MESSRS. McKESSON & ROBBINS of New York, presents features regarding the antiseptic care of the mouth and the bleaching of teeth, which promise most interesting and profitable results to the profession. Pyrozone is the 3 per cent. basic part of that which was called peroxide of hydrogen. Pyrozone 3 per cent. solution is the first peroxide of hydrogen solution which could be shipped to the Coast in glass-stoppered bottles. It develops no pungent, acrid or other characteristic which could limit its use for a mouth wash, pus destroyer or gradual bleacher for teeth. Pyrozone 5 per cent. solution is a more powerful bleacher and surgical antiseptic. Pyrozone 25 per cent. solution is the triumphant bleacher with a range of usefulness which widens by experiment daily. Tartarlithine is the lithium analogue of what was found to produce the greatest alkalinity of the blood and at the same time the greatest solvent power for uric acid. Clinical experiments under the direction of Dr. Edward C. Kirk are now being conducted with success, which is little less than wonderful in the study of the uric acid diathesis.

KALEIDOSCOPIC.

Care of the Tooth-Brush.—The care of tooth-brushes is not sufficiently observed. In our city houses they stand in their cups or hang on their racks above the set toilet-bowls day and night, aborbing any disease-germs that may be floating about. They should be washed frequently—at least twice a week—in some antiseptic solution, strong salt and water or bicarbonate of soda and water being two good and readily provided cleansers. Tooth washes and pastes should also be kept carefull covered.—*Philadelphia Ledger.*

THE

Pacific Coast Dentist

DAILY EDITION. JUNE 14, 1894. VOL. II.–NO. 4.

MIDWINTER FAIR DENTAL CONGRESS.

ACADEMY OF SCIENCES HALL,
819 Market Street, San Francisco, June 13, 1894.

TUESDAY—AFTERNOON SESSION.

The general session was opened at 2 P. M., President Wm. J. Younger in the chair. Dr. Eugene S. Talbot read a paper entitled "Science in Dentistry. Dr. George H. Chance presented "The Relation of Dentistry to General Medicine." The others for the afternoon and evening were: "Duty and Progress," by F. H. Metcalf of Sacramento; "The Conservation of the Interdental Space," by E. A. Lundy, of Hongkong, China; "Practical Suggestions," by Dr. C. E. Francis, of New York; "The Recuperation of Dental Tissue," and "Composite and Combination Fillings," by Prof. J. Foster Flagg of Philadelphia, all of which will be published in future numbers of this journal.

WEDNESDAY—THIRD DAY.

No session was held yesterday, as that day had been set apart for a trip to the Union Iron Works and a visit to the Fair.

The tugboat "Rockaway," which Mr. Irving M. Scott generously tendered to the use of the Congress, met those who desired to visit the Union Iron Works at Mission-street wharf at 10 o'clock and took a large party of ladies and gentlemen down the bay to the works. Two or three hours were spent in seeing the immense workshops of the great shipbuilding establishment. At one o'clock the party returned. Some were landed in the city as the tug passed, while the others were given a more extended excursion on the bay.

Tickets had been distributed to all those who wished to visit the Fair, and dentistry was pretty thoroughly represented at the Midwinter Fair.

The evening was devoted to a session at which some of the best papers were read.

There will be no session this evening, as the members are invited to attend the commencement exercises of the College of Dentistry, University of California.

Friday evening the visiting members and their ladies will be tendered a banquet in the Maple Room of the Palace Hotel, at 8 o'clock, by the dentists of San Francisco and Oakland. Tickets may be procured from Dr. J. M. Dunn.

Saturday the tugboat " Rockaway " will leave Mission-street wharf at 9 o'clock, steam to the Union Iron Works, where Mr. Scott will join the party, and then all will be taken to Sausalito. A bullshead breakfast will be served there at Wildwood Glen Park (tendered the Congress by the Dental Club).

ORIGINAL COMMUNICATIONS.

THE PRESENT AND FUTURE STATUS OF THE DENTAL PRACTITIONER.

BY JOSEPH D. HODGEN, D.D.S., SAN FRANCISCO.

[Abstract of paper read before the American Medical Association.]

IN the presentation of this paper the author apologizes for its lack of original argument and thought, and is pleased, above all, to furnish food for free and thorough discussion, rather than the advancement of new theories.

The dentist of to-day is the Doctor of Dental Surgery, educated and licensed as such. As a practitioner his province embraces the science and art of diagnosing and treating diseased conditions of the organs and contiguous tissues of the oral cavity; of operating surgically for deformed, injured and wasted conditions; and supplying artificial substitutes in the place of organs and tissues lost in that region.

From such it is to be inferred the truly proficient practitioner has at least a partial if not a finished medical education; that he is to no slight extent an oral surgeon, and that he is a skillful and scientific mechanic.

He is thus at once a physician, a surgeon, and a handicraftsman—a dentist. His parallel to a partial extent might appear in the oculist who linked out with his own specialty the skill of the manufacturing optician.

In holding that a dentist should have the advantages of a medical education we are well aware that we meet with no inconsiderable opposition. But while the opponents to such are strong in numbers they are weak in point of argument to sustain their holding. It is argued that the time and expense necessary to such a course are its greatest hindrances. It is perhaps true that many men who are now enabled to pursue a course in dentistry would be deprived of that privilege if our colleges prolonged their term of pupilage to that extent necessary to embody a medical curriculum. However, we are led to doubt this as a fact when we recognize that only three years ago the course in dentistry has lengthened from two years to three, and that by actual statistics there are more colleges and more students to-day than there has ever been at any one time previous. Young men are crowding the colleges and the profession who would do well to stay with the plow and the farm. Are we then to lower the standard of the profession in order to receive these men to our already overflowing ranks? Is dentistry a refuge for those who are seeking what appears to them an easy and respectable means of gaining a comfortable livelihood?

It is also said that dental practitioners burdened with medical educations view their "dental work through medical spectacles." What detriment this may be to their judgment as a dentist is not clearly explained. Further, it is argued that the majority of dentists who attain a medical education subsequently "abandon dentistry for the practice of medicine." Such a condition of course does not interest us nor fall within our province to consider.

No, the status of the American dentist of to-day is *change* pre-eminently above all else. He has reached that point at which he must declare himself a handicraftsman, a mechanic, a skilled laborer, or a scientific specialist of the healing art. He has occupied the disputed position as long as progression will permit. Which shall it be: to mechanics, and back to charlatanism, empiricism, and closed laboratories? or a step toward medicine, a move toward occupying what has been termed the *terra incognita*—that territory of practice which has heretofore been partially claimed by both medicine and dentistry, and pre-empted by neither? It means that we must now decide whether we are to practice tooth-restoration or tooth-conservation; whether we are henceforth to be satisfied with a slaughter of natural organs and tissues, in order to restore and supply, or by scientific investigation aim at the conservation of what remains and prevent the inroads of further destruction.

It has been lately remarked that "dentists are wonderful patchers-up of things half gone; but they do not know how to prevent the going." This is the key-note; and what is the cause of this condition? Is it because our mechanical skill has been neglected? Should we have had more infirmary and laboratory practice and training at college? Is our metallurgy and physics defective? No; more science and medical education.

We feel safe in the assurance that conservative dentistry must necessarily be based on an appreciation of the anatomical, physiological and pathological relation of the mouth in disease and health, and that until the importance of this kind of knowledge is fully appreciated, a community will fail to receive at the hands of its dentists the benefit which they have a right to expect.

"To be impressed," said one, "with the necessity which these proposition indicate, one has only to remember the various important anatomical and physiological functions of the mouth; the physical, organic and mental associations, and the corresponding extent of its pathological relations.

"Anatomically, no portion of the human economy offers a more complex association of structures; physiologically, none whose functions are so deversified, and yet so essential; pathologically, none whose systemic relations are more significant.

"A consideration of the pathological relations of the mouth includes radiated, reflex, or sympathetic disturbances of harmony, or interference with functions in contiguous or remote organs, originating in the mouth, as well the expression in the oral cavity of lesions or interruption of harmony in other organs. Morbid systemic or constitutional conditions, whether the result of some immediate primary affection, or of inherited tendency or perversion, find usually a more or less strongly pronounced existence in the mouth.

"It is supposed that the dentist is entirely unacquainted with the systemic condition of his patient; indeed, he is not presumed to have any right to *meddle* with such; while the physician rather complacently ignores the importance of the local lesions which it is esteemed the province of the dentist to correct.

"Meanwhile the patient chafes at the incompetency of the dentist who fails to arrest by mechanical skill the ravages of caries, and perhaps the person himself fails to recognize in the lesions the expression of systemic mischief. On the other hand, the physician, ignoring local causes, tries in vain pills and plasters, blisters and purgatives; tries in vain the whole round of narcotics, sedatives, stimulants, tonics, antispasmodics, and antiperiodics; talking learnedly of neuroses and cachexiæ until pharmacopœia, patience and patients are alike exhausted."

These undeniable facts are illustrative of the necessity that a wider range of knowledge by the dentist is imperatively demanded.

Medicine, in its broadest sense, is the science and theory of disease and of remedies; the art of preventing, curing or alleviating diseases and lesions of the human body; and its highest form to-day is found in its specialisms. In other words, the medical art breaks away at once from the unity of the theory of disease, and while there is but one body of pathological doctrine for either sex, for every period of life, and for every region and part of the organism, the practical art divides itself into departments and sub-departments—such as surgery, obstetrics, dermatology, ophthalmology, otology, etc. Dentistry—or more properly, at this juncture, odontology,—being the science and art of preventing, curing or alleviating the diseases of the teeth, which form an important part of the human body is therefore a department of the healing art.

Such a deduction is but a natural one and true in the confines of the premises. Why, then, are we still clamoring without the gates for admittance? Because to the doctor of medicine this is not strictly true. He is not so liberal. Medicine to him is only medicine when the art of preventing, curing or alleviating diseases of the human body as practiced by medical graduates of medical colleges. When teeth are conserved from disease, and extracted when useless, it is dentistry.

So the status of dentistry to-day as far as our medical brothers are concerned is not that of a specialty of medicine, principally because we are not graduates in medicine. Are they right?

To those who may believe they are not, it is comforting to feel that, though their maternal acknowledgment is so dear and their association so keenly desired, they shall not be permitted to sit sole judges of our relationship.

Other influences, both external and internal, are doing much to drag us from this fireside of art and science.

The first we are led to believe, is the necessary amount of mechanics our profession is obliged to teach and practice;

Second, the distinct degree and curriculum that we are attempting to maintain and enforce;

Third, the percentage of our profession that are not graduates—many though of whom are our brightest lights;

Fourth, our determination to be recognized.

The forces and influences which are tending to draw us beneath the maternal roof are, however, such that will eventually overcome all opposing ones, they are:

First. The addition of medical chairs to dental faculties and the division of dentistry into the operative and the mechanical dentist. In all large communities men who make it a business of doing mechanical work for one or more practitioners is fast becoming a special department of dentistry. These "mechanical dentists" in many cities, do a very large percentage of all the mechanical work, and in some States the law is inclined to wink at the infractions of these unlicensed.

Second. The patent dissatisfaction in which the degree is held and the disinclination of colleges and universities to settle upon the not universally adopted degree of doctor or dental surgery, together with the tendency to establish a variety of post-graduate degrees for the purpose of advertising the decorated, or college conferring it.

Third. The rapid percentage decrease of non-graduates and the tendency of dental and medical graduates who intend to practice dentistry to acquire both medical and dental degrees.

Fourth. The establishment of the Oral Section of the American Medical Association.

The elevation of any particular class of men is, however, dependent upon a demand on the part of their constituents—the People. The greatest attainments of any profession or body—the pulpit, the bar, the medical fraternity, or what not—is the result of enlarged conception on the part of their representatives; but that conception has its stimulus in the public demand.

The force then of successful issue lies in the education of our patients: in the establishment of recognition from them occasioned by scientific efficiency and an elevated qualification in the average practitioner. No amount of recognition from a national, state or local medical societies given a body of men undeserving can be made to stand the test of popular opinion.

We, therefore, believe the future course of those who are so ably leading to be not only through the channels of education as it may present itself in the education of dentists in the specialty of medicine, but that thiers is a plea for text-books for and education of the people.

Complete recognition can only and will result in the displacement of the dental degrees by the medical for all, with special training for special purposes.

NOTES.

THE Alumni banquet promises to be a great success. If you have not signified your intention of attending do so immediately. Tickets may be secured from Drs. W. F. Sharp, P. C. Erhardt or J. M. Dunn. The banquet will be given in the Maple Room of the Palace Hotel this evening just after the close of the commencement exercises.

THE Dental Club members number fifty-three. Dr. W. J. Younger has resigned the presidency, and Dr. Russell H. Cool elected in his place—and still the club goes on.

MAKE yourselves at home at the Dental Club. The purpose of its organization was to entertain visiting dentists and members of the Congress.

DR. BONWILL intends to make quite an extended stay in California, visiting all the principal points of interest.

DR. TALBOT left for his home in Chicago yesterday morning. Sorry he could not have remained longer with us.

OFFICIAL PROGRAMME

OF

The Midwinter Fair Dental Congress

THURSDAY, JUNE 14, 1894.

MORNING SESSION—10 A.M.

CLINICS

AT THE COLLEGE OF DENTISTRY, UNIVERSITY OF CALIFORNIA,
Corner of Market and Taylor Streets.
W. F. SHARP, Master of Clinics.

1. " Loop Anchorage in Gold Fillings"..A. F. MERRIMAN JR., Oakland
2. " Anchored Dentures "....................C. M. CARR, Salt Lake
3. " Use of the Napkin '.............GEO. H. CHANCE, Portland, Or.
4. " Bicuspid Crown, Porcelain Facing "......W. DE CROW, San Jose
5. Exhibit—Combined Mouth-Prop, Mirror and Dam-holder "............................F. P. HICKS, Tacoma
6. " Continous Gum Denture "......S. J. KNOWLTON, San Francisco
7. " Administration of Pental "..........E. D. EDDY, San Francisco
8. " Seamless Crown "....................J. G. PARSONS, San Diego
9. " Porcelain Jacket Crown "........J. E. CUMMINGS, San Francisco
10. " Combination Filling, Gold and Amalgam"....................................RUSSELL H. COOL, Oakland

AFTERNOON SESSION—1:30 P.M.

1. " The Aromatic Sulphuric Acid Treatment for Abscesses "...........................J. M. DAVY, San Jose

   Discussion opened by J. L. Asay, San Jose.
2. " Periodonteal Endodonteal Tumors, Their Treatment, Pathology and Cure "............A. C. HART, San Francisco

   Discussion opened by L. Van Orden, San Francisco.
3. " Statistics and Observations on the Removal of the Natural Teeth "......................LOUIS OTTOFY, Chicago

   Discussion opened by F. C. Pague, San Francisco.
4. *a*—" Ideal Porcelain Crowns "............F. W. BLISS, Santa Cruz
   b—" Choice of Material for Crowns "..C. E. POST, San Francisco
   c—" An Ideal Crown "...............C. S. PAYNE, San Francisco
   d—" Rational Methods of Constructing Crowns and Bridges "..........................H. C. MILLER, Portland

No Evening Session.

EDITORIAL.

THE DUTY OF THE CONGRESS.

THUS far the attendance of the Congress has been fully up to the expectations of the most sanguine.

The papers, aside from being exceedingly numerous and versatile in subject-range, have been of an exceptionally high order. The discussion has been animated and superior to the usual "after-talk" of the average professional gathering, in that they have been to the point, scientific, and, above all, interesting to the average member.

When we remember that but five or six months was given the various committees to accomplish what has been done; the extent of territory from which it was necessary to draw the membership; the comparatively isolated geographical position of San Francisco; and the great expense delegates were put to, both in loss of time from their business, and necessities attending travelling and hostelry expenses, the success is, we dare say, most admirable, and second only to the great meeting held in Chicago last summer.

It proves one thing at least that it is possible to hold such a meeting and that a Pacific Slope Dental Association is a possibility.

Let it be the sense of this Congress assembled that such an association should be organized, and let proper steps be taken to create it.

It is easy now to elect a committee consisting of a representative from every society on the Slope, and make the membership of the proposed association the membership of all the various dental societies of this territory who have adopted the code of ethics of the American Dental Association for the ethical guidance of its members. Let annual or biennial meetings be held in some one of the larger cities, such as Denver, Salt Lake, Portland, Los Angeles, Tacoma or San Francisco, and the Congress will have done a greater work than any other professional gathering in the past.

Such meetings as this we are now holding have many duties imposed upon them, but the greatest of all is the missionary work it is under moral obligation to the profession to perform

When we realize that out of the more than 4000 practitioners of dentistry on the Pacific Slope not more than 400, or 10 per cent. of them, take any active interest in associational work we cannot but be apprehensive for the future of our calling.

We then feel that if the Midwinter Fair Dental Congress should adjourn without having taken action in some way toward the inaguration of this needed missionary work, the very essential of the meeting will have been lost, our time dissipated and the Congress a failure.

AN OPPORTUNITY FOR EXCURSIONISTS.

The Committee on Transportation has, in its desire to see that our visitors may enjoy excursions about the State as pleasantly and reasonably as possible, secured special rates from the railroad companies for the members of the Congress and their friends to visit the Geysers or any of the points on the S. F. & N. P. R. R.

The members may apply to Dr. C. W. Hibbard, who will supply them with certificates upon which they can purchase a round-trip ticket at a one-way rate by presenting the same at the office of the company, 2 Montgomery street.

Going to the Geysers the train is left at Cloverdale, and arrangements have been made to make the remaining distance of seventeen miles by stage as reasonable as possible.

The round-trip rates to different points on the S. F. & N. P. R. R. are as follows: Petaluma, $1.00; Santa Rosa, $1.50; Healdsburg, $2.25; Cloverdale, $3.00; Ukiah, $4.50. Tickets sold under this order will be good until June 30, 1894.

To parties wishing to go to Monterey or Santa Cruz, the S. P. Co. offers the following: Present your certificates of membership, or receipt for dues, at room 73, third floor of S. P. R. R. building, corner of Fourth and Townsend streets, and a round-trip ticket to Monterey will be given you for $4.00; or one to Monterey by Santa Cruz with the stop-over privilege for $4.90. We hope all may be able to take advantage of this opportunity.

IN Wednesday's number we were pleased to publish an abstract of a paper presented before the Oral Section of the American Medical Association by Dr. John C. McCoy, of Santa

Ana, entitled "The Teeth of Our School Children; What Can be Done to Save Them?" in which that gentleman expressed an earnest desire that the Association "pass a resolution indorsing the plan." No action was taken by the section upon the subject notwithstanding it met with the unqualified approbation of all present. We are interested in calling the attention of our readers to this paper and admirable plans embodied therein with the hope that in the entertainments of the week so important a matter as the adoption of some such a resolution as the doctor suggests will not be lost sight of.

PUBLISHERS' NOTICE.

Doctors attending the Midwinter Fair Dental Congress will be interested in the exhibit of Horlick's Food Co., of Racine, Wis., owners of Horlick's Malted Milk. Recognizing the need for a nourishing stimulant in dental surgery, the manufacturers advance Malted Milk as the only product answering every requirement—rapidity of solution, ease of preparation and nourishing properties. It can be prepared in a moment, by dissolving in water—hot or cold—and furnishes to the patient after a prolonged sitting, not only a palatable, but a refreshing drink. Samples are being distributed at the exhibit, and all doctors should secure and test it.

Do not go home without having subscribed for the Pacific Coast Dentist. Keep abreast with the times. If a solicitor calls on you for your subscription do not refuse him—subscribe even though you cannot conveniently pay for it in advance. It will contain during the year all the papers and discussions of the Congress, beside the proceedings of all the societies of the Coast, and many other contributions from able and practical men. The journal has "come to stay," and no pains will be spared to make it complete in every department. Its collaborators and editor respectfully solicit your co-operation in the maintenance of this enterprise, which can be made to do so much toward upbuilding and uniting the profession on this Coast. Subscription $2 50, postage paid.

Pacific Coast Dentist Pub. Co.

NOTICE.

The California State Board of Dental Examiners will hold its regular annual meeting for the examination of candidates for licenses to practice dentistry in California, in Parlor A, Palace Hotel, the first Tuesday in August, 1894, continuing four days.

JOSEPH D. HODGEN, D.D.S., Secretary.

KALEIDOSCOPIC.

What "Kalium-Natrium" Is.—Kalium and natrium are Latin terms for the alkali metals, potassium and sodium. The noted properties are: its softness, causing it to be easily cut like wax, the rapidity with which its silvery white surface tarnishes when exposed to air, its great lightness (sp. gr. 0.865), causing it to float upon water. The most striking of all properties which this metal possesses is its remarkable affinity for oxygen. When a piece of the metal is thrown upon water it takes fire and burns with a fine violet flame, floating about as a melted globule upon the water's surface, and producing in the act of combination enough heat to kindle the hydrogen as it escapes. The violet color of the flame is due to the presence of a little potassium in the form of a vapor. The same result occurs if the metal be placed on ice. Caustic potassa, or potassium hydrate, is found in solution. It is a very deliquescent salt, possessing the property of turning red litmus paper blue when dipped in a solution of it.

The metal sodium possesses similar properties to that of potassium, excepting that its affinity for oxygen is less great. Its physical characteristics are also the same, except its specfic gravity, which is slightly higher (0.97°), including its melting point (95° C.) It does not take fire when thrown into cold water, although it is at once fused by the heat evolved. By holding a lighted match over the globule as it swims upon the water, the evolved hydrogen may be ignited, when its flame acquires a bright yellow color from the presence of sodium vapors. By placing the metal on a piece of filtering paper laid on the water, it may be forced to ignite the hydrogen spontaneously, because the paper retains it in a stationary position, thus preventing it from being rapidly cooled by gliding over the water's surface. The salt formed in solution is identical in properties with the "so-formed" potassium salt. The reaction may be explained as follows:

K and $Na + 2H_2O = K\,OH$ and $Na\,OH + H_2 +$ heat. First reaction.
Potassium, sodium, water, caustic potassa and soda, hydrogen.

$H_2 + O = H_2O$. Second reaction.
Hydrogen, oxygen (from atmosphere), water.

Owing to the too energetic action of metallic potassium in the presence of moisture, Dr. Schreier observes that its use alone would be more or less attended with danger. He would modify the action of potassiam by alloying the metal sodium with it.—*Western Dental Journal.*

THE

Pacific Coast Dentist

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MIDWINTER FAIR DENTAL CONGRESS.

ACADEMY OF SCIENCES HALL,
819 Market Street, San Francisco, June 14, 1894.

THURSDAY—FOURTH DAY.

The morning session was devoted to clinics.

Dr. E. D. Eddy gave a very successful clinic on "Administration of Pental." Four patients were operated upon, and three or more teeth extracted from each. The doctor explained that the average amount necessary for anæsthesia was about 2½ drachms, and its effects would last from one to two minutes.

Dr. A. F. Merriman Jr., gave a clinic on "Loop-Anchorage in Gold Fillings." This was a very skillfully performed and interesting clinic.

Dr. C. M. Carr of Salt Lake, presented "Anchored Dentures,"

Dr. G. H. Chance of Portland, "Form of the Napkin and its Use."

Dr. S. J. Knowlton finished a beautiful continuous gum case

Dr. J. G. Parsons of San Diego, nicely demonstrated a method of making a seamless crown. The doctor desires to say that he makes no claim to originality in the method of constructing this seamless crown, the idea coming originally from the metallic cartridge maker.

The afternoon session was devoted to the programme of papers, and the evening was spent at the Commencement Exercises of the College of Dentistry at Odd Fellows' Hall.

CORRECTION.—In Thursday's edition a paper, entitled "Recuperation o Dental Tissue," by Dr. W. E. Burkhart of Tacoma, was credited to Dr. J. Foster Flagg of Philadelphia. We apologize.

ORIGINAL COMMUNICATIONS.

AMERICAN MEDICAL ASSOCIATION — ORAL AND DENTAL SECTION.

DR. F. O. JACOBS, being present, and having prepared a paper entitled "Persistent Vitality," he was invited to read it before the Section, of which the following is an abstract:

PERSISTENT VITALITY.

The interest that has lately been created in the operations of replantation, transplantation, etc., has raised the question among dentists, as to whether a tissue will survive after having been removed from its natural position and again replaced; or, after having been removed, can it again be transplanted to another individual, without suffering death? And, if so, what time may elapse between the two operations? And if it should be determined that such operations were possible, what tissues are the most favorable to such operations? Or, in other words, and more briefly, is there such a thing as persistent vitality?

This subject involves the broad question: What are the conditions which produce death? and what conditions are required to support life? Can we lay down any laws or rules that will hold good in all cases? At first we meet with so many seeming contradictions that we are discouraged in the attempt. We are prone to think that one form of life is something entirely different from another, and the rules that would apply to one will not apply to another. While we find, in general, that living organisms may exist only in an atmosphere or medium containing more or less free oxygen, some one comes along and tells you he knows of certain forms of life that can exist in an atmosphere of carbonic acid, drawing all its oxygen from its food. Another must have a medium of salt water; another must exist in fresh water; others, again, cannot be immersed in water but for a few moments without suffering death. Some organisms are able to withstand extreme changes of moisture or temperature. Some animal forms and also plants may be deprived entirely of their moisture—completely dried up, so that vital functions are entirely suspended until moisture is again restored. Some may be frozen in cakes of ice or raised to a temperature near the boiling point of water without any other effect than to suspend functional activity for the time being.

Among the more highly specialized organisms, the amputation of a member or organ generally produces death in the parts so treated, or in the entire organism, owing to which organ or part is separated from the body. But in the more simple forms amputation of a part only produces a new animal. A remarkable example of this is found in the fresh-water hydra. This animal consists of a tube, one end of which is modified into a foot, the other is furnished with arms.

The entire animal is of but one tissue. If an arm is amputated it immediately grows into a new hydra. The animal may be cut into several pieces, with the result of producing as many animals, instead of death. Turn the animal inside out, it immediately makes an effort to right itself. Should it fail, it dies. Deprive it of moisture and it dies.

Why should the cutting of an animal in pieces only have the effect of multiplication, and simply depriving it of moisture produce death? Exactly the reverse of some other plants or animals. The explanation is probably this: Its structure is that of large delicate cells, very soft, which are easily broken up by desiccation; so that by depriving it of moisture its structure is destroyed; death, of course is the result. Cutting it in pieces only multiplies because it is.composed of but one tissue throughout, capable of performing the same functions. Hence a piece, if separated from the animal, is not dependent upon it to perform any of the functions necessary to support life. Reversing destroys its life, because the cells on the inside of the tube are so modified as to perform the functions of assimilating food; while the outer cells are for the protection of the inner. When the animal is reversed neither of these sets of cells are in a position to perform their natural functions, therefore death is the result.

Now, there are other plants and animals of which the reverse is true, which, if deprived of their moisture, simply remain inactive until the proper quantity of moisture is restored, when they resume their normal functions. In their case the cell structure is a strong, firm tissue, which is not broken up by desiccation. Depriving the living matter or protoplasm within of its moisture is not a chemical but a physical change. The lining matter within the cells is a chemical compound, the exact chemical nature of which is not known, but its constituent elements are known. It is extremely unstable; being constantly acted upon by free oxygen on the one hand, it must be constantly taking up proper material on the other to preserve the equilibrium in its chemical nature. Its affinity for water is great and its activity depends upon the presence of water. The more water it is able to absorb, the more active it becomes. In the absence of that element activity ceases until moisture is restored unless some chemical change takes place, when it is no longer protoplasm. As it does not form compounds with other substances without losing its identity, differing in the least from itself in chemical nature, a living tissue is never attached to a dead one or to other substances. Hence, when a living tissue is found attached to another, supposed to be a dead one, it must be considered evidence that the tissue supposed to be dead is at least possessed of a low degree of vitality. What has been said of protoplasm is true of it wherever found, for living matter is the same thing wherever found.

The different modes of death cited above is due to the difference in the structure of the tissue it inhabits. Where the tissue is composed of firm, hard cell walls, it is much more able to endure desiccation.

Where an organism is composed of a similar tissue throughout its entire body, separating it into pieces only multiplies it.

One of the present methods of skin-grafting, scraping the epithelial cells from the surface of the skin on to the part to be engrafted, is a case where a tissue or cells of formed tissue is engrafted on to another tissue, forming a union and a new tissue; transplanting. Now, if a tissue can be transplanted from one place or location to another, some time must elapse between the two operations. It then becomes a question how long will a tissue endure between the two operations, and what tissues are most favorable to such operations? How long could the scrapings of epithelial cells be preserved before transplanting, or how much time might elapse between the operation of extracting and of transplanting a tooth? The evidence furnished by such operations is conclusive that it is much greater than any of us have supposed. Why may not a tooth be successfully transplanted? Its structure is not changed by extracting, and decomposition is less likely to set in than in any other tissue of the body.

Much of what we have yet to learn in physiology must be drawn from the study of minute and simple formed organisms. The facts to which I have called your attention will show that death implies a chemical change, and without that there is no death.

It also shows that the tissues that are best suited to transplanting, replanting, etc., are hard, firm and simple structured tissues, like the skin, the teeth and bone. Those less suited for such operations are of delicate cell-walls and soft loose structure, that will easily collapse when removed from its normal position and by loss of moisture.

The success that has been met with in transplanting such tissues fully confirms the above conclusion.

ADDRESS ON BEHALF OF THE FACULTY TO THE GRADUATING CLASS OF THE COLLEGE OF DENTISTRY, UNIVERSITY OF CALIFORNIA.

BY JOSEPH D. HODGEN, D.D.S., SAN FRANCISCO.

MR. PRESIDENT, GENTLEMEN OF THE FACULTY, MEMBERS OF THE GRADUATING CLASS, LADIES AND GENTLEMEN: Your faculty, gentlemen, makes this the occasion of severing the pleasant relationship which has for the past three years existed between you and itself—as pupil and professor.

Yours is the initial class, from this college, under the new regime—that of three years instruction; and, though these years may have seemed long and tedious, you are assured that the time has been no more than adequate for the consummation of the liberal course of instruction of which you have been the recipients. You have in these few months been given the benefit of that education, experience and teaching which your faculty has been years in acquiring; that the profession into whose portals you are now bade to enter, has been half a century in demonstrating essentially necessary for those who follow its standard.

In the faithful completion of this prescribed curriculum of study and training, you have earned for yourselves scholarships in a liberal and representative profession, which, amongst much else, exacts of its successful a life of scientific study and honorable conduct. Your master, you will doubtless find, more severe, and your deportment more amenable, but, as your tasks become less burdensome, your rewards will grow greater.

I regret to acknowledge two avenues of practice invitingly opened before you—two professional lives placed side by side in the beginning—one of which you must choose; but, need I add, with the confidence reposed in you we have no misgivings as to your choice. The one is an honest, honorable, ambitious practice; a sincere devotion to the profession, an active affiliation with its societies and associations, and, above all, spurred on by a sense of responsibility to the loftiest aim in life to be useful to mankind. The other, a dishonorable, dishonest empiric practice; a strife for the "almighty dollar" alone; an ostracism from fraternal organizations, a den of charlatanism and quackery.

Connected with almost every kind of honest business are to be found some improper and dishonest practices, which arise, too often, from the minds of money-grasping vicious characters, engaged therein, whose aim is neither the advancement of science or art, nor the elevation of the calling which they have chosen to pursue, but rather the accummulation of the profits arising therefrom, however they may be obtained.

These practices, as applied to distinct occupations, have been called—so long that "the memory of man runneth not to the contrary"—"the tricks of the trade" and "business;" but in these latter days they are more properly defined by the general term, "humbug."

We witness with shame these professional impositions in the reprehensible want of candor exhibited towards those who patronize such practitioners as we have alluded to, in the inclination to deceive them in regard to the conditions of their dental organs, and the nature of the operation, which may so particularly affect their comfort for all time; in the lack of sympathy shown the patient, and the willingness of the operator to forget his comfort, as well as in the absolute recklessness which he manifests for the character of his profession; for, in his eager grasp for the dollar he loses sight entirely of the fact that something is due the profession and its character. He seems to forget, in view of this corrupting talisman, that he is dealing with living tissue, and that the delicate organs upon which he is permitted to operate are sensitively shrinking from his lack of skill and care. He considers the whole operation a mere business transaction and comforts himself by thinking that there is no money to be made by entertaining sympathy for the suffering patient. If the greed of gold is the only object of malpractice with such unprincipled characters, there is nothing which will so surely keep them from the goal of their ambition.

Let industry and honesty of purpose be the means of your excellence, for no vain promises of speedy accummulation of wealth is extended to you, as has been said; the profession offers no inducements to money-makers, and contains few who have become rich by its practice.

Highly esteem and carefully cultivate your relationship with the profession. It is true that selfishness is the mainspring of multitudes to exertion ; but he whose heart is in his profession will pursue it with an ardor and an energy which nothing else can supply. And it will impel him onward and upward, and sustain him in a sphere of effort which selfishness can never reach. Where a cordial regard for the profession is the animating and controling principle, it cannot fail to inspire the heart with refined, generous, noble sentiments, and thus impress true professional dignity upon the whole man.

Always cherish feelings of respect for your fellow-practitioners. "None of us liveth to himself." The character and welfare of all the members of a profession are, to a certain extent, bound up in the same bundle. Let but your calling be elevated and respected, and each individual shares in the general esteem. That is a miserable short-sighted policy which seeks to exalt itself upon the ruin of another's reputation.

There is one way, and that a sure one, for you to secure for yourself the high advantage, the most gratifying of all attainments—your profession's respect and good will; cherish a feeling of respect for your fellow-practitioners. This will lead you always to regard their rights as sacred; this will render you at all times courteous, even to the most humble of your brothers.

There cannot be a brighter ornament in your character than kindness. Without it you may have the most vigorous intellect, and the greatest amount of general scholarship, and professional learning and practical skill, still your character will be miserably imperfect. No one can admire you; none will freely approach you. Necessity may indeed compel someone to seek your aid, but they will feel little gratitude for it, and retain no kind recollections of you.

A kindly spirit and gentle manners will wonderfully mitigate the sufferings of a patient, even when your skill fails to give relief. And scores under the influence of a sympathizing deportment may be induced to attempt tedious courses of treatment and even painful operations, when nothing else could subdue. It is in this way that a benevolent temper and its natural and usual accompaniment, gentle manners, greatly add to the effectiveness of the practitioner. Hence, one so qualified will win confidence and insure success, where others of much larger professional learning and skill may fail utterly.

Another view of our profession brings us to the realization that ours is a time and tendency to the practical division of all labor, whether it be mental or physical.

You have chosen a specialty of the great healing art. Dentistry is a link in the great chain of medical knowledge; it is a part of the same great science, resting upon the same immutable laws, and must consequently be studied in all its extent and relations for the practical and proper application of those general principles which belong to any one part as well as to the whole of the body. It is no objection to urge that because the dental organs are of limited extent, that therefore the object is not the same, or that a dental education need not be as extensive as that of any other medical specialty.

We are but lingering for a time in the hazy dawn of our professional specialism, and as the roseate hue of morning lights up the hilltops of our real identity, we catch the first clear outlines of the recognition the scientific sunlight of noon is sure to reveal.

Its onward and upward march of progression has ever been the greatest characteristic of our profession. Never in the history of any calling or avocation has this spirit of progression been so manifestly a true part as it has proven to be in dentistry. Never has scientific pursuit shown so marked an excellency from its very birth. Cradled in humility, knowing no assumption; schooled in determination, despising failure, it strides forth in the vigor of its youth responding competently and nobly to the call for aid from suffering millions—a benefactor of mankind.

Then to you, gentlemen, is entrusted the future of this noble work. To you it is tendered in its prosperity. Look to it that you gather additional laurels to adorn its deserving brow.

Permit me in behalf of the faculty and the dental profession as a whole, to extend to you a most cordial and sincere welcome into the ranks of our specialty, believing you will be a help to us, and we to you; and now your attention to the watchword of all ethical and scientific members—*Progression.*

> "Press on! there is no such word as fail;
> Press nobly on! and reach the goal,
> Ascend the mountain! breast the gale!
> Faint not! for to the steadfast soul
> Come wealth and honor and renown.
>
> * * * * * *
>
> The wisdom of the present hour
> Makes up for follies past and gone;
> To weakness strength succeeds, and power
> From frailty springs! Press on! press on!"

COLLEGE OF DENTISTRY ALUMNI ASSOCIATION.

The Association met in the parlors of Odd Fellows Hall Thursday evening, June 14th, at 7 o'clock, Dr. W. F. Sharp in the chair. After some business of minor importance the election of officers was held, resulting as follows:

President	Dr. Harry P. Carlton
Vice-President	Dr. C. W. Hibbard
Recording Secretary	Dr. Harry G. Richards
Corresponding Secretary	Dr. H. D. Noble
Treasurer	Dr. P. C. Erhardt
Librarian	Dr. Pratt

Executive Committee.—Dr. H. L. Seager, Dr. M. F. Gambetz, Dr. J. M. Dunn, Dr. J. D. Hodgen, Dr. G. N. Van Orden.

After the commencement exercises the Alumni reassembled around the board in Maple Hall, Palace Hotel, to partake of a delightful menu and enjoy the responses to many interesting toasts. About sixty members were present, including the faculty. President Martin Kellogg and Rev. A. C. Hirst were guests of the evening.

NOTES.

J. W. Rooch has the latest novelties and improvements; a splendid assortment of porcelain teeth; also Rowan's Decimal Gold, and all other makes in stock.

Get your tickets for the banquet from Dr. J. M. Dunn.

OFFICIAL PROGRAMME
OF
The Midwinter Fair Dental Congress

FRIDAY, JUNE 15, 1894.

MORNING SESSION—10 A.M.

CLINICS

At the College of Dentistry, University of California,
Corner of Market and Taylor Streets.

W. F. SHARP, Master of Clinics.

1. " Implantation "..................W. J. Younger, San Francisco
2. " Porcelain Crowns "..................C. E. Post, San Francisco
3. " Bleaching Teeth," under direction of W. J. Evans.... ....C. L. Goddard, San Francisco
4. " Exhibit and Illustration "....J. A. W. Lundborg, San Francisco
5. " Exhibit ".........................C. G. Bush, San Francisco
6. " Exhibit " ....John Rabe, Oakland
7. " Porcelain Face, Metal Dovetailed Crowns "........... ....A. T. Derby, San Francisco
8. " Gold Inlays ".........................A. O. Hooker, San Jose
9. " Porcelain Crown "..................H. Hipkins, San Francisco
10. " Exhibit ".......................E. Parmly Brown, New York

AFTERNOON SESSION—1:30 P. M.

1. " Immediate Root Filling "...........R. E. Campbell, Woodland
   Discussion opened by R. H. Cool, Oakland.
2. " Hypnotism in Dentistry "........M. J. Sullivan, San Francisco
   Discussion opened by W. G. A. Bonwill, Philadelphia.
3. " Care of the Bicuspids "..............J. M. Whitney, Honolulu
   Discussion opened by S. H. Roberts, San Francisco.
4. " Affection of the Jaws in Locomotor Ataxia "........ ....Leo Newman, San Francisco
5. " Implantation ".......................Russell H. Cool, Oakland
6. " Pyorrhea Alveolaris "............W. J. Younger, San Francisco
7. " Syphilitic Diathesis "...............Russell H. Cool, Oakland

No Evening Session.

LIBRARY HARVARD UNIVERSITY DENTAL SCHOOL

EDITORIAL.

WHILE at the Fair Wednesday, most of the delegates visited the display made by the College of Dentistry, in the section devoted to the University of California. Every one was speaking of it and astonished at the perfection of the work. It is the only exhibit of dental work of any importance in the Fair and was made entirely by the students.

It is only proper that this Congress take some recognition of the merit there displayed. We are told that there is another small display made by a practitioner in a commercial way, for advertising purposes, and it is whispered that such work comes high in Chicago.

Would it not be well to have the Congress nominate a committee to wait upon the College Faculty and ask them to enter the display as a competitive exhibit, and that the judges upon exhibits be so instructed ?

This is only a matter of professional decency, for if such is done the awards will be turned from quackery to educational encouragement, and no capital can be made of it. Moreover, it is only a fitting courtesy of the Congress toward the college as its host.

EXCURSION TO THE GEYSERS.—The Committee on Transportation wishes to inform the members of the Congress that if a party of twenty-five can be secured, they can be accommodated with a private car to Cloverdale. The seventeen miles by stage can be made for $2, round trip. The party will leave San Francisco via steamer Tiburon at 3:30 Saturday. Any who may be at that time at the bullshead breakfast at Sausalito, can have the tug take them to Point Tiburon and join the party there. No better opportunity will ever be offered for a visit to the Geysers.

A LUNCHEON.—Dr. W. J. Younger tendered the members of the Congress a very swell luncheon in Maple Hall, Palace Hotel, Thursday at 12 o'clock. About one hundred guests were present and a delightful menu discussed. Certainly the doctor is one of the most generous fellows in the world.

DR. E. PARMLY BROWN, of New York, has arrived.

KALEIDOSCOPIC.

How to Silver Glass.—The following method will produce excellent mirrors, provided the conditions are adhered to: 1. Pure chemicals; 2. Have the glass chemically clean; 3. Adhere strictly to the formula.

1. *Solution.*—Dissolve 2½ drachms nitrate of silver (crystals) in two ounces of distilled water, and add concentrated liquid ammonia, drop by drop, until the brown precipitate formed is nearly, but not quite, all dissolved; then add 24 ounces of distilled water, and filter three times.

2. *Reducing Solution.*—Dissolve 1½ drachms nitrate of silver in 24 ounces of distilled water; then take one ounce of water in a graduate and dissolve in it 30 grains of white caustic potash, and add this to the 24 ounces of solution just mentioned; then add 420 grains Rochelle salts. Filter three times.*

We have tested the formula given above and find that it gives excellent results. Two parts of No. 1 to one part of No. 2, by measure, give better results than equal parts. The glass should be cleaned with caustic potash dissolved in water, and should be thoroughly rinsed before silvering. The process of silvering can be hastened by having a steam table on which to lay the plate of glass, over which the combined solution can be poured. A gas stove or an oven can be used. Small pieces of glass can be silvered in one to two minutes by holding them a few inches above the flame of a Bunsen burner. Defective spots may be remedied by removing the silver around the spot with nitric acid and resilvering. If the hands become stained with the solution, rub the stains with a crystal of resublimed iodine, until the color begins to change, then sponge with alcohol. Only small pieces of glass should be attempted at first until the method of working in the process is well understood —[Ed. *Scientific American.*

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* Solution No. 2 will be found to have a heavy black precipitate; and it is necessary to filter same until it is perfectly clear, which can be accomplished by having three funnels, one above another, with filtering cotton packed in rather tightly. *Always use distilled water.* To use the above solutions, mix equal parts of No 1 and No. 2 together, and flow over the glass, which, however, must be in a room heated to about 90 or 100 degrees F.—*John Breffitt.*

TO SUBSCRIBERS AND ADVERTISERS.

The publication of a daily programme edition of the PACIFIC COAST DENTIST for use of the Midwinter Fair Dental Congress, which was in session up to June 15th, served to delay the June issue. As an intelligent, though brief, summary of each day's proceedings, combined with abstracts of papers read before the Oral Section of the American Medical Association at its session just held, will be found to constitute this number, we feel the lateness justified.

A change in the Dentist Publication Co. occurs with this issue, the publishing and advertising management being assumed by Mr. Miles L. Farland, an experienced publisher and printer.

THE
Pacific Coast Dentist

VOL. II. JULY, 1894. No. 7.

ORIGINAL COMMUNICATIONS.

PYORRHEA ALVEOLARIS.

BY WM. J. YOUNGER, M.D., SAN FRANCISCO.

[Read before the American Medical Association.]

BY this name, I mean that condition in which there exists patches of a slate-colored calculus partially or entirely incrusting the roots of the teeth, with the alveolus more or less destroyed, and the surrounding gums deep red, retracted and congested (though sometimes attenuated), usually yielding pus on pressure at the cervical margin between it and the tooth, though this last feature is sometimes absent.

This incrustation is firmly adherent to the cementum, for no pericemental tissue is ever found between it and the cementum. When removed, it comes off in scales, leaving the portions of root from which it is detached clean and white. This is true of the calculus on the shaft of the root; but that which is found around the apex of the fang is very difficult of removal, as it does not scale, but has to be dragged off by piecemeal or dissolved by chemicals.

This is not in consequence of any difference in the character of the tartar, but in the fact that the roots are not smooth like the sides, and present a roughened surface, and, therefore, a more secure attachment to the calculus.

In consequence of the waste of the bony walls of the socket, when this disease has progressed to any extent, the teeth will

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NOTE.—The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in this country.

be found loose and tender on pressure, and frequently raised in their sockets or forced out of their position—usually towards the side opposite to the location of the tartar.

If the disease is allowed to progress to a conclusion, the teeth will drop or fall out in consequence of their attachment to the alveoli being entirely destroyed.

The etiology of this disease is as yet surrounded in mystery, though the professional opinion is slowly drifting toward regarding it as of constitutional origin, and the deposit of calculus (which is the bane of the disease, and always present—some writers to the contrary notwithstanding) as being of hemorrhagic origin, due to imperfect nutrition and connected with a gouty diathesis.

That it may be connected with malnutrition may be true—for no organ or tissue can become diseased while it is properly nourished. Or that the condition may be aggravated or modified here by constitutional disturbance or cachectic state is also palpable; but sufficient proof has not yet been adduced to establish the theory that pyorrhea alveolaris is of constitutional development and especially due to a gouty diathesis.

On the contrary, my experience with this disease (covering a period of over thirty years) has convinced me that it is of purely local origin; and I am very much inclined to the opinion I promulgated some ten or twelve years ago at a session of the California State Dental Association, that it is due to a diseased activity of the pericementum, caused by disturbed nutrition or a local irritation, and that instead of bone it produces this disorganized abortion, vulgarly called tartar; itself perishing in the effort by the irritation of its presence.

This is the reason why pericementum is never found under the calculus. And this theory is strengthened by the fact that the constituents of tartar are analogous to that of bone, and also why the pericementum is never in contact with the margin of the calculus; for there is always a denuded strip of root between it and the membrane.

While the irritation inducing the formation of this calculus may proceed sometimes from—or be caused by the blood—as, for instance, the impaction of a capillary thrombus—I think it usually due to some irritant acquired from without. For the deposit is first formed near the cervices of the teeth, most frequently upon the approximal surfaces under the lingual margin where food and seed, etc., are most apt to lodge.

It is only in mature life and advanced age that we find it near the ends of the fangs; but, in young or old, one thing is certain: that between the alveolus and the root there is always free communication between the calculus and the cavity of the mouth. This condition, which, in my long experience, I have found invariable, shows the probability of some migrating germ or substance from the cavity of the mouth being the original or exciting cause of the mischief.

Now, were this disease of constitutional origin, there certainly would be many cases in which there would be no lesion whatever between the gum tissue and the neck of the root. The pus, seeking egress, would pierce the alveolus and the gum, just as in alveolar abscess. This would at least go to show that pyorrhea is not always due to an extraneous irritant. But even then it would not be proven of constitutional origin, and my theory concerning a diseased activity of the pericemental membrane and the lodgment of a capillary thrombus would be a better explanation. Moreover, I have found this disease to exist in an advanced condition in persons who have always been exempt from any constitutional ailment whatever; who had no gouty or rheumatic diathesis, either by inheritance or acquirement (at least had never developed any); who never had indigestion or any form of dyspepsia, and who had—to use their individual expression—"the stomach of an ostrich," and had never been sick a day in their life.

It was the consideration of such cases that made me once call pyorrhea alveolaris a "disease of good health." Another thing that tends to prove that the disease is local is the fact that when once it is cured, and the gums are made to reattach themselves, the disease does not return to them—no matter what cachectic condition may exist in the system.

As uric acid exists in the blood of the gouty, it is not to be wondered that in persons of this diathesis traces of the urates should be found commingled with the calculus of pyorrhea; for any disturbing cause (such as tartar) that induces excitation and flow of blood to a part will almost of necessity acquire a deposit of whatever the blood is freighted with, and therefore the uric acid which Professor Peirce found in some of the calculus, and upon which he based his assumption that the calculus was the result of a gouty condition, was simply the natural outcome of the presence of an over-supply of blood, and had nothing to do with the origin of the calculus.

But the best way to try a theory is to test it clinically, and if, for instance, in pyorrhea alveolaris it is found that the disease can be prevented or cured by constitutional treatment, then we must regard that disease as of constitutional origin. But if, on the other hand, you find a local disturbance or lesion yielding to local treatment solely, and remaining cured regardless of any systemic pathological condition, then you may reasonably conclude that this disease is local. And from my experience with pyorrhea alveolaris I would as soon think it of constitutional origin as I would that corns, bunions and freckles are of systemic development.

And now to consider some cases in point: A lady, who had a decided gouty diathesis, through inheritance—so marked that her finger joints became tender and swollen and the deposit of uric salts was being continually formed in the follicles of her throat—went to a friend of mine (one of the cleverest men in the profession) to have three upper molars—two on the left and one on the right in nearly the last stages of pyorrhea alveolaris—treated and filled. Their roots were so thoroughly incrusted with tartar that they merely hung in their sockets by their apical extremities, and they were all more or less decayed, and especially the right molar—for it had a cavity extending almost to the pulp. She had also suffered for two or three years from frequent attacks of nervous prostration, and the impression commenced to grow that this condition was due, in a measure at least, to the state of her teeth, which in consequence of their looseness and tenderness made it impossible for her to masticate properly. My friend advised her to have these molars drawn immediately for the sake of her health, as he considered it impossible to save them; but, as the lady would have to substitute artificial dentures, she demurred, and, hoping to spur him on to some effort to preserve them, she remarked:

"I think that Dr. Younger could save them."

"Madam," was the retort, "neither Dr. Younger nor God Almighty could save those teeth. They are so loosened by disease, I could pull them out with my fingers."

The idea that God Almighty should not be able to save them grated on her religious sensibilities, and she determined to wait until my return. I was then on my way home from Berlin, and one of the first persons to consult me on my arrival was this same lady. Having made a specialty of just such cases, I commenced treating her, ignorant of the judgment that had been passed upon the teeth by my esteemed colleague, and she had feared to tell me until the cure was effected, lest it might prejudice my efforts. In six weeks the teeth were firm, and the alveolar tissue strongly adherent throughout their full extent—certainly around the cervices.

It is now nearly four years since the case was completed, and, though the finger joints still swell and become tender, and the uric incrustations still form in her throat, the teeth have had no return of the trouble. They are rigid in their sockets, and there is nothing in their appearance, nor in that of the environing gums, which would suggest the lesion that had been so nearly fatal to their existence. Now, no constitutional treatment was made, the success being due entirely to local application.

Some eight or nine years ago, at a meeting of the State Association, the subject of pyorrhea was in discussion, and there was an almost unanimous opinion expressed that this disease could not be cured, and that the cures I mentioned could not have been "true pyorrhea." While I was on my feet arguing this, Dr. Cummings of this city, came to me, saying "Can you cure me?" and opened wide his jaws. His teeth were all loose, the swollen gums had retracted from around the roots for an eighth of an inch, and pus flowed at the slightest touch. I replied, "Yes, if you will permit me to clinic on you before these gentlemen and prove to them how wrong they are."

I then called the attention of the convention to the condition of Dr. Cummings' mouth, and asked them to tell me what the matter was. With one accord, they said "pyorrhea."

"Bad case?"

"Yes, a very bad case."

"Now, gentlemen," I said, "the proof of the pudding is in the eating. I will treat Dr. Cummings before you, and at our next session you will see whether pyorrhea can be cured or not."

I gave the Doctor half a dozen treatments, all local, and the disease quickly yielded; and though eight or nine years have passed since then there has been no return of the disease, and the teeth and gums are firm and sound.

A few years ago I commenced treating a gentleman of mature years for pyorrhea. He was also being treated for gout. The pyorrhea was on a fair way to cure, when, one fine morning, he told me that his physician had informed him that my local treatment could not possibly save his teeth ; that the disease in his gums was the result of gout, and had to be treated constitutionally. He therefore dropped me and stuck to his physician, who was a very learned man with a microscope. The result was he was relieved of his gout; also of his teeth—for, under the constitutional treatment they all dropped out. Had he stuck to me, alone, he would have had his gout, but he would also have had his teeth. He should have stayed by both of us, and now he would have his teeth, and be minus his gout.

It is a fortunate circumstance that a knowledge of the etiology of pyorrhea alveolaris is not a necessary factor for its cure. There are few lesions in surgical pathology more simple of treatment than this same disease, the most essential requisite being skill and manipulative dexterity in order to secure the thorough removal of the calculus and the perfect cleansing of the root. The elimination of every particle of tartar is a *sine qua non* to success. Unless this is done perfectly and absolutely, the disturbing cause of the disease will not be eradicated, and it will in time return.

The return of the disease that so many complain of is due very often to the fact that the complete removal of the tartar has not been accomplished and that the surfaces of the roots have not been thoroughly cleansed. The appreciation of tartar, however, is not always easy, and it requires a certain sensibility in the fingers not common to all persons. It is that touch which makes one violinist superior to another in the development of the tone of his instrument. This is the reason why so many have failed to discover tartar when it existed, and why it has led them to suppose that either the tartar had been completely removed, or that the pyorrhea existed without the tartar.

There is, besides the sense of feeling, an acuteness of hearing by which we can recognize by sound, as the instrument passes over the root, whether it is the substance of the root or an incrustation. But before the removal of the tartar is attempted the teeth and cervices and the little pockets containing the tartar and the calculus itself should be thoroughly sterilized. I prefer the bichloride of mercury—one to one or two thousand. It should be used warm—at least that portion that is injected around the necks of sensitive teeth—in order to prevent the pain that cold applications are almost certain to produce. The sterilization is necessary to prevent the absorption of septic matter, as the gum is almost certain to be abraded by the instruments used to remove the tartar. For the same reason the instruments should be thoroughly sterilized. The water used as the menstruum for the sterilizers should have been subjected to distillation; otherwise the organic matter and chemicals which are apt to be in ordinary water may be sufficient to decompose or to modify the strength of the sterilizing agent and so negative its action. But, by all means, be sure and sterilize the instruments; keep them continually in the antiseptic fluid while laid out for use.

In removing the calculus, commence with one tooth and *stay* by it until all of the tartar is removed, even if it takes the full time of the sitting. And, as fast as the tartar is scaled off, wash the tooth out with the warm fluid by syringing with delicate platinum-pointed syringes. If this is not done minute pieces of the tartar will adhere to the raw surface of the gum, keep up an irritation and prevent the healing process from being established. It is well when the pockets are very deep to insert a little lactic acid to dissolve the diseased edge of the alveolus and any minute fragment of tartar which may have escaped the instrument.

The root being thoroughly cleansed, and the débris washed out of the pocket, a little tincture of iodine may be dropped into it or else a solution of chloride of zinc three and one-half drachms to the pint of water, to stimulate its contraction and the production of granulations, and to induce the attachment of the alveolar tissue and gums to the root. If this does not take place then rub quickly with a little wad of cotton, saturated with liquor ammonia, washing out immediately with warm water. This ammonia is to remove the mucous membrane from the healed and therefore unattachable surface of the gums; and the water is to wash it off before its escharotic action can be established. By this means a healthy granulating surface is formed, contraction stimulated, and attachment to the clean surface of the root induced. In case the gum should remain flabby, inactive and indolent then acupuncture should be resorted to. This can be done by rapidly piercing the gum with a sterilized needle. When the amount of the deposit is so great that the alveolar septi have been destroyed pass a threaded needle through the gums and between the roots of the teeth and approximate them by tying them as nearly together as can be done without the use of much force. If too much force is used the thread will cut through the gum.

In the case of one lady of fifty-five the accumulation of tartar was so great that the septi of both gum and alveoli from the first bicuspid of one side to the first of the other were destroyed, and the labial and lingual wall of gums simply leaned against the teeth when the mouth was in repose, but left them instantly when the tongue or lips moved. For instance, when the lower lip was pushed down, all the wall of the gum upon its aspect went forward with it, leaving the roots of the teeth entirely denuded of gum upon their front. When the tongue was raised or retracted, the gum upon that side moved away also, leaving bare the teeth upon the lingual surface; and when the tartar was all removed the separated teeth leaned in every direction.

I gave the gums the ammonia treatment; held them in position by means of ligatures through the interdental spaces; kept the mouth in an aseptic condition by the repeated use of the sublimate every two hours. In a couple of weeks I had the gratification to see the spaces filled with granulations as high as the margins and firmly binding the two layers of gum into one continuous mass. This case was reported to the State Dental Association and to the Surgical Section of the Ninth International Medical Congress in Berlin.

The reason for treating the teeth one by one—that is completing the removal of the tartar and all that has to be done—at one sitting is that the process of healing should not be interfered with after it has commenced; and, also, because there is the object of getting, so far as possible, the benefit of healing by first intention.

By the subsequent use of antiseptic washes until the healing process was entirely accomplished I have succeeded in curing the most desperate cases of pyorrhea alveolaris, and of restoring to perfect use teeth that have been for years worse than worthless.

There is only one condition in which I have found failure, and that is where there is a dead pulp in connection with an incrusted apex. This condition is found almost exclusively in the palatal root of the superior molar, and the difficulty in the way of a cure is due not so much to the tenacity or quality of the tartar as it is to the septic condition of the substance of the fang: the putrescence of the pulp having invaded the tubuli and canaliculi and destroyed beyond hope of restoration the vitality of its tissue, and thereby its ability to reform attachment.

As the diseased pulp is usually confined to the palatal root (that in the buccal being usually healthy) my treatment in these cases has been to open into these roots, remove their pulps, fill them and amputate the palatal; then grind away enough of the articulating surface of the crown immediately over the removed root, in order to bring the pressure in the effort of mastication upon the buccal roots. By these means these teeth can be made comfortable and serviceable for years, if not for a lifetime.

In eleven cases of pyorrhea reported by Dr. C. N. Peirce and Dr. Albert Brubaker, wherein they sought to establish their theory that uric salts were found in the incrustations of what they call "true pyorrhea," in but five of these eleven cases were they able to discover traces of uric salts.

Now, although exceptions are said to prove the rule, where the exceptions are more numerous than the rule sought to be established, the exceptions govern the rule. Therefore the cases cited by Drs. Peirce and Brubaker are not sufficient to base their assumption and their conclusion.

There can be no local lesion or irritation (which is not more or less affected by the state of the system) that when vitiated will prevent the healing of an otherwise simple sore which under normal conditions would yield readily to local applications.

Dr. Brubaker makes a statement that the deposit of uric salts upon the end of the roots is being "continually renewed." One would infer from the term "renewed" that the deposit is absorbed and more salt redeposited; but, as such a statement would be absurd, he cannot possibly mean that. The only inference to be drawn then is that if the deposit is removed by instruments or chemicals a fresh deposit of the uric salts would take place, and thus a source of irritation would be continually kept up. Now both Drs. Peirce and Brubaker claim that this condition only takes place at the apex of the fang; but why should it be limited to the apex of the fang? The same exact tissue surrounds the sides of the roots as that which envelops the end. Then why limit this particular action to this particular locality?

The fact is, that when a deposit incrusts the entire end of a root the irritation set up by its presence results in the death of the pulp, and this condition with the greater vascular activity set up by the propinquity of the calculus to the larger blood-vessels entering the foramen of the apex causes in a greater degree a deposit of any salt the blood is freighted with. Therefore, in the few cases in which an examination revealed the presence of the urates, such a presence was but a natural conclusion, and the only wonder is that the salts were not found in the entire eleven cases cited, instead of only in five.

I do not know why it is that Dr. Peirce calls that condition, only, where the calcic formation surrounds the apex of a root, "true pyorrhea alveolaris." This condition exists so rarely when compared with what he calls ptyalogenic calcic pericementitis (but what is known to the profession as pyorrhea alveolaris) that it reminds one of a fanciful name given by early settlers to a certain region in this State—Strawberry Valley—for the reason that there were no strawberries in the valley! If he wished to make a distinction between the calcic formation on the shaft of the fang and that of the apex he should have left that general condition known as the "true pyorrhea" and given a name to the special condition.

But why is it that this special condition exists almost, if not entirely, on the palatal root of the first superior molar? It is easy to be seen from the fact that the palatal root of the first molar spreads more than that of the multi-rooted teeth. That the tissue over them is more attenuated than it is over the roots of the other teeth, and that they are therefore more affected by thermal changes than the other roots; that the pressure of the tongue and the super-imposed food is greater upon these roots—in fact, that the impact of food is stronger on these roots than on any other. They are, therefore, more exposed to changes and vicissitudes than the buccal roots of the same teeth, or of the roots of any of the other teeth. That is the reason why we so often find these roots are more susceptible, in consequence, to abnormal changes and death.

In concluding this paper perhaps it would be well for me to summarize the arguments for and against the theory of pyorrhea alveolaris being due to constitutional diathesis. The arguments in favor of pyorrhea alveolaris being of constitutional origin are what?

First. That it is found in some persons afflicted with gouty diathesis;

Second. That traces of uric salts are found in the calculi of some of the people afflicted with the gouty diathesis;

Third. That the condition of irritation in the gums and around the roots, and the discharge of pus are modified by constitutional treatment.

In opposition to this we find:

First. That pyorrhea is found in persons having no constitutional cachexia or diathesis;

Second. That if it were of constitutional origin it would be found in all, or at least in nearly all cases having the gouty disposition;

Third. That the amelioration of the irritation by constitutional treatment is what would occur in any local irritation when the system would be placed in a healthy condition;

Fourth. That if it were of gouty diathesis the deposits from the saliva would also be impregnated with these urates;

Fifth. That, if it were of constitutional origin, constitutional treatment would be necessary for its cure; but, instead, local treatment is found sufficient for its complete eradication, notwithstanding the constitutional ailment is continued in undiminished force;

Sixth. In all cases of pyorrhea alveolaris we find a connection between the calculus and the cavity of the mouth, which would not necessarily be so if it were the result of a constitutional, pathological state.

Beside these points Dr. Van Woert asserts that the disease is communicable by infected instruments; which, if true, would prove a very strong argument against the theory of constitutional development.

A STUDY OF THE LATERAL INCISOR.

BY C. L. GODDARD, A.M., D.D.S., SAN FRANCISCO.

[Abstract of paper read before the American Medical Association.]

IN the dentition of man, as well as of lower animals, we find the incisors varying in number, form and position, more than any other teeth except the molars; and of single teeth we find greater variation in the lateral incisor than in any other tooth except the third molar.

Let us study for a short time the incisors in relation to their number, their irregularities of position and the effect on them of cleft palate extending through the alveolar ridge.

In the lower orders of mammalia we find in most cases six incisors in each jaw. The typical or parent dentition of the mammalia was—

I $\frac{3}{3}$. C $\frac{1}{1}$ Pm. $\frac{4}{4}$ M $\frac{3}{3}$=44.

The hog has the same; as has also the horse.

Divergence in familiar animals is noticed as follows:

Dog—*Canis familiaris*, I. $\frac{3}{3}$, C. $\frac{1}{1}$, Pm. $\frac{4}{4}$, M. $\frac{2}{3}$=42.
Cat—*Felis domestica*, I. $\frac{3}{3}$, C. $\frac{1}{1}$, Pm. $\frac{3}{2}$, M. $\frac{1}{1}$=30.
Hyena—*Hyænidas*, I. $\frac{3}{3}$, C. $\frac{1}{1}$, Pm. $\frac{4}{3}$, M. $\frac{1}{1}$=34.
Otter—*Lutra*, I. $\frac{3}{3}$, C. $\frac{1}{1}$, Pm. $\frac{4}{3}$, M. $\frac{1}{2}$=36.
Common seal—*Phoca vitulina*, I. $\frac{3}{2}$, C. $\frac{1}{1}$, Pm. $\frac{4}{4}$, M. $\frac{1}{1}$=34.
Some extinct insectivora—I. $\frac{3}{2}$, C. $\frac{1}{1}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}$=42.

Of the Prosimæ, the group preceding the anthropoids in development, we find the dentition of the typical *lemurs* to be:

I. $\frac{2}{2}$, C. $\frac{1}{1}$, Pm. $\frac{3}{3}$, M. $\frac{3}{3}$=36.

In the order *quadrumana* we find the following formulæ of the five families:

1. Midas, *marmoset*, the lowest representative of the species, I. $\frac{2}{2}$, C. $\frac{1}{1}$, Pm. $\frac{3}{3}$, M. $\frac{2}{2}$=32.

2. Platyrrhines (flat-nosed monkeys of South America) I. $\frac{2}{2}$, C. $\frac{1}{1}$, Pm. $\frac{3}{3}$, M. $\frac{3}{3}$=36.

3. Catarrhines (Old World), I$\frac{2}{2}$, C. $\frac{1}{1}$, Pm. $\frac{2}{2}$, M. $\frac{3}{3}$=32.

Anthropoids, *simiadæ*, including the chimpanzee, gorilla and orang, I. $\frac{2}{2}$, C. $\frac{1}{1}$, Pm. $\frac{2}{2}$, M. $\frac{3}{3}$=32.

5 Man—I. $\frac{2}{2}$, C. $\frac{1}{1}$, Pm. $\frac{2}{2}$, M. $\frac{3}{3}$=32.

The individual teeth of the chimpanzee and gorrilla very nearly resemble those of man, but the teeth of the orang resemble them most of all. This is most noticeable in the canines or cuspids, which in the carnivora are very large, long and strong. In the quadrumana they gradually decrease in size till in the orang they are not much larger proportionally than in man.

It may be interesting to examine for a few moments the dental formulæ of animals which have lost some of the typical teeth:

The horse—I. $\frac{3}{3}$, C. $\frac{1}{1}$, Pm. $\frac{4}{4}$. M. $\frac{3}{3}=44$.
The mare—I. $\frac{3}{3}$, C. $\frac{0}{0}$, Pm. $\frac{4}{4}$, M. $\frac{3}{3}=42$.

The canines are rudimentary in the male and wanting in the female, and the first premolar is rudimentary in both.

Cow—*Ruminant*, I. $\frac{0}{3}$, C. $\frac{0}{1}$, Pm. $\frac{3}{3}$, M. $\frac{3}{3}=32$.
Fox Squirrel—*Rodent*, I. $\frac{1}{1}$, C. $\frac{0}{0}$, Pm. $\frac{1}{1}$, M. $\frac{3}{3}=20$.
Rat—*Rodent*, I. $\frac{1}{1}$, C. $\frac{0}{0}$, Pm $\frac{0}{0}$, M. $\frac{3}{3}=16$.
Three-toed sloth—*Insectivora*, I. $\frac{0}{0}$, C. $\frac{0}{0}$, Pm. $\frac{0}{0}$, M. $\frac{5}{4}=18$.
Norwhal—I. $\frac{1}{0}=2$.

The cow, like all other ruminants, has lost the superior incisors and canines and one premolar. The fox-squirrel has lost two incisors, all canines and three premolars. The rat has lost two incisors, all canines and premolars. The sloth has lost all incisors, canines and prèmolars, but gained two superior and one inferior molar (probably premolars shaped like molars). The norwhal has lost all teeth except one upper incisor on each side.

Referring back to the lowest order of quadrumana, you will see that the genus *midas* has lost but two molars on each side of each jaw.

Midas—I. $\frac{2}{2}$, C. $\frac{1}{1}$, Pm. $\frac{3}{3}$, M. $\frac{2}{2}=32$.

Dr. Wortman, in the *American System of Dentistry*, says: "The only approach to this condition to be met with elsewhere in the order is in the dentition of man, in whom it appears that the last molar or wisdom tooth is gradually becoming rudimentary or defective in the higher races. Various causes have been assigned in explanation of this fact; one of which is that the greater development of the brain necessitates the expenditure of a smaller amount of growth force upon the maxillary bones, whereby insufficient room is allowed and the tooth stunted. If this be the real cause, it is difficult to understand why, in the lowest representatives of the order, and those in which the cerebral hemispheres are proportionately the smallest, the complete suppression of the last molar should have occurred." (See also the dentition of other lower orders.)

The dog M. $\frac{2}{3}$, cat M. $\frac{1}{1}$, hyena M. $\frac{1}{1}$, otter M. $\frac{1}{2}$, seal M. $\frac{1}{1}$.

In the human dentition we find occasionally a reversion to the type of lower orders.

The names of the teeth are given from their shape: incisors, from the Latin *incido* (I cut); canines, from the most prominent of the dog's teeth. In the human dentition we call it a cuspid, from the Latin *cuspis* (a spear), because it is a sharp or spear-pointed tooth. Bicuspids are so called from their two cusps. Molars are named from the Latin *molere* (to grind).

In some of the lower orders, however, there is a difficulty in deciding from its shape which tooth is an incisor, or, rather, which is the lateral incisor; which a canine, and which the first premolar. In order to trace these teeth with more certainty in different orders, the following definitions have been given:

"An incisor tooth is one which has a *premaxillary* or *intermaxillary* implantation, irrespective of size or form. The incisors of the lower jaw are the corresponding ones which are brought into opposition with those of the upper jaw when the mouth is closed. A canine tooth is one which is situated in the maxillary-bone immediately behind the maxillo-premaxillary suture (provided it is not too far back), whatever may be its form, size or function; while the canine of the lower jaw is the one which closes just in front of it. A premolar is one which being situated behind the canine displaces in a vertical direction a deciduous, or milk tooth. All others behind these are true molars."

Although in the human dentition the normal number of incisors in each jaw is four, there is occasionally a reversion to the dentition of lower orders, and more are seen. We are accustomed to call these "supernumary teeth."

At this juncture the doctor exhibited a number of casts illustrating cases of "supernumary teeth"—in one five, another six incisors in the human mouth. Then a cast showing *six temporary inferior incisors*, and another showing six *permanent* incisors of the inferior arch, both being casts of the same jaw at different ages.

Illustrating the first step toward the suppression of the lateral incisor, casts were displayed showing the abscence or peg-shaped variety of one or both. In one instance father, mother and child showed the same dental deformity—the abscence of a lateral in mother and child and abscence of two in the father.

A cast also showing an attempted suppression of a temporary lateral—it being joined to the central, and a similar condition in that the lateral is joined to the cuspid instead of to the central. Another cast showed three *temporary* incisors on one side.

Turning his attention to the irregularity of teeth the doctor showed casts which he said convinced him that, excepting the third molar, the lateral incisor is out of line more often than any other tooth, and that it is to be found more often on the lingual than on the labial side of the line. In fact, its position on the labial side of the line is rare. In seeking a cause for this we find it due to the crowding of the canine (cuspid) tooth. In many cases the four incisors will erupt normally, or perhaps in the segment of a circle slightly smaller than normal, and by the eruption of the cuspid the lateral will be crowded lingually till the cuspid nearly or quite touches the central incisor. In many cases the laterals erupt so far behind the line of the centrals that the cupsid erupts by the side of and often in contact with the central. The usual treatment for such cases is either to expand the arch, for it is often much too narrow, thus moving the cuspids aside enough to make space for the laterals, which are then moved forward into place or a tooth posterior to the cuspid is extracted, preferably the first bicuspid, the cuspid is forced back and the lateral then moved forward into place.

In treating these cases we have one factor of great importance and often lost sight of; that is the position of the roots of the teeth.

We may find after moving the cuspid outward or backward that the crown has an unnatural appearance; that it is tipped too far out or too far back. In tracing the root by means of the canine eminence we find its apex is not in its normal position. It is nearer the root of the central incisor; and a line drawn from the apex of the root of one cuspid to the apex of the root of the other is much shorter than a line drawn between the summits of their cusps. In such cases the crowns of the lateral incisors when drawn forward present an unnatural slant, the neck of the tooth is not as far forward as the cutting edge. The apex of the root is manifestly posterior to its natural position. We infer by this that the intermaxillary bone is smaller and narrower than normal, hence the anterior borders of the superior maxillæ proper are nearer together than normally, and this accounts for the abnormal position of the cuspids, which lie immediately back of the maxillo-premaxillary suture. This narrowness of intermaxillary bone will account for the sharp nose with narrow nostrils and small nasal cavity, noticed in so many persons. Is nature striving to create a new order of beauty by gradually decreasing the size of the intermaxillary bone and thus narrowing the anterior portion of the face? *The lessening of the size of the intermaxillary bone would, in some cases, have the effect of crowding the laterals out of position, as shown by these cases of irregularity and in other cases of suppressing the lateral altogether.* Shall we find the man of the future with the following dental formulæ:

$$\text{I. } \tfrac{1}{1},\ \text{C. } \tfrac{1}{1},\ \text{Pm. } \tfrac{2}{2},\ \text{M. } \tfrac{2}{2} = 24\ ?$$

While studying the lateral incisor let us examine these casts of cleft palate cases. You will see a tooth between the cuspid and the cleft. It is not a temporary cuspid for it has none of its characteristics. By its shape we must call it a lateral incisor and yet if the incisors are developed only in the intermaxillary bone, how did it cross the cleft?

Dr. Norman W. Kingsley says: "Theoretically I believe a lateral incisor belongs on the side of the cleft with the centrals in hair-lip cases, but I have had several cases where there was a small tooth on the other side of the cleft and contiguous to the canine. If they were not lateral incisors they were supernumeraries resembling laterals."

This question we must then leave unsettled. By its position the tooth should be a cuspid, but by its shape it is a lateral incisor. If it is a lateral, how did the germ cross the cleft, for the maxillary and intermaxillary bones are developed from different centers?

INAUGURAL ADDRESS TO THE CALIFORNIA MIDWINTER FAIR DENTAL CONGRESS.

BY WILLIAM J. YOUNGER, M.D.
PRESIDENT OF THE MIDWINTER FAIR DENTAL CONGRESS.

IT is with a peculiar feeling of pride that I stand before you to-day as president of the first great congress of dentists of the Pacific Coast—honored as it is by the presence of distinguished members of the profession from so many States, Territories and foreign countries

As I look upon your earnest faces and consider the sacrifices many of you have made to be here—the great distances overcome, the loss of time suffered, the inconveniences, discomforts, expense and fatigue of travel endured—I cannot help but admire the spirit of devotion shown by you to professional interests, and your appreciation of the advantages of fraternal intercourse in mass.

California's claim to recognition was clearly set forth by Dr. Teague in his address yesterday. There is, therefore, nothing more for me to say, other than to reiterate the fact that within the last thirty years California has contributed to the field of dental practice more than any State in the Union or any country in the world.

This is not to be wondered at, when we consider that the men who came to the sunset shore of our continent. The Pioneers who brought civilization and advanced the "State of Empire" to the West were men of no common mould, but were instead the big-brained, courageous, adventurous spirits of the whole globe—men from college, field, trade and profession; men of commerce, of science, of art, who dared to face danger and privation in an unknown land in the pursuit of fortune.

Wealth of ideas cannot spring from a narrow mind; energy and enterprise do not come from sluggish natures; the spirit of adventure does not arise in slothful souls; the courage and energy to meet unknown difficulties are not born in cowardly hearts. It is not surprising then that these choice spirits concentrating here should have formed a community having more of ingenuity, of talent and of genius than those they had left; and that our people have therefore added so much to the general field of operation in our new art and science.

Dentistry requires for its complete administration several diverse qualities of mind; hence, a broader intellect is needed to be a thorough dentist than a practitioner in any other profession. Dentistry wants for the proper exercise, development and administration of all its functions the very genius of a Michael Angelo, who was successful as a painter, poet, architect and military engineer, and no doubt would have made a perfect dentist had he lived in our time. Our own Story is lawyer, sculptor and poet. But how rare are intellects having this versatility of talent. Yet dentistry for its completeness demands such a combination. It requires the talent that would make a good physician, the talent that would make a good surgeon, the talent that would make a good mechanic and the talent that would make a good artist.

There exists in Australia an animal that scientists are at a loss to classify; for, while it has the characteristics of a fish, a bird and a beast, it is none of them. So dentistry, necessitating the knowledge of a physician, the skill of a surgeon, the ingenuity of a mechanic, and the eye of an artist, stands as the *ornithorhyncus* of the professions. A facetious public may affect to find another point of resemblance in the "*long-bill.*"

We must not look to the teeth simply as objects to be extracted, filled or replaced by artificial dentures; that is simply the mechanical portion of our art. Nor should we look at it from the artistic point solely, which confines their effect to the beauty of the face; nor from its more practical one, their use in mastication. But we should regard them as organs having subjective and objective relations with the whole animal economy; their condition as indicating disorder in the system, or as a cause of irritation in other organs, and for their effect on the progress of disease.

There is a *terra incognito* that lies between the practitioner of dentistry and him of medicine. Pioneers from both ranks are exploring the unknown realm; but as yet their efforts are simply individual. Sufficient, however, has been gathered by them to establish the fact of the wonderful sympathy that exists between the eyes, ears, stomach, brain, nervous system and the teeth and gums; their dependence for their perfect health on the soundness of the latter, and the pathological reaction when these are in an unhealthy condition. This proves the necessity of the most absolute conservatism in dentistry.

The diseases due to an ill condition of the oral cavity and dental organs we believe to be much more serious than at present recognized by dental and medical practitioners. The presence of tartar alone, I believe, exercises a pernicious influence on many disorders of the system, especially those of zymotic origin, and deserves most serious inquiry by medical men. If the blood is poisoned, and disease generated by miasma, sewer gas, exhalations from cesspools, graveyards, etc., which are simply the emanations from decaying vegetable and animal matter, and introduced into the system by inhalation, how much more serious must the condition of that patient be whose mouth contains the noxious influences in the incrusting tartar. Such a person can never draw a pure breath of air, let him go where he will—to the mountain tops, where the zephyrs know no taint, or amid the healing balm of the forest trees—his every inspiration is made foul the instant it passes the lips, and goes to the lungs, freighted with the poisonous matter contained in his own mouth. How can such a person get well, when he carries forever with him an aggravating cause of the disease that prostrates him? May not the tartar, in a depressed condition of the system, be in itself sufficient cause for septic trouble? or may it not turn the scale in the delicate balance between life and death?

The connecting link between surgery and dentistry has now been established. Surgery is but the child of one hundred years, and yet it is now on a par with medicine, which had its rise in the lost ages. Dentistry is but the growth of fifty years, but in the great achievements it has made, it has placed itself on a par with surgery. And may we not hope—is it too wild a dream—that in the knowledge we have already acquired of the effect of disease of the teeth upon the system, dentistry will be put upon an equality in its relative capacity with surgery, medicine, or with any other profession in the world?

It was left to America to construct it into a learned body; to found colleges for it, to graft it into universities and form it into associations for the good of mankind.

The nineteenth century which is now about to close—the most wonderful century the world has ever seen!—has been the age of revolution and evolution. Ushered in politically by Napoleon, who controlled the world's geography, upsetting dynasties and changing boundaries; Stevenson binding the earth with his iron rails; Morse circling the hemisphere with his interminable wires like Puck's girdle; Edison recording the human voice and contracting a thousand miles into the whisper of four walls; Darwin's discovery of the laws of evolution; Wilberforce and Lincoln sundering the shackles of human slavery; Beethoven and Wagner translating for us the music of the spheres; Byron, Tennyson, Longfellow and Browning painting poetry in the human soul and enriching the chambers of memory; the springing from childhood to gigantic manhood and power of the grandest republic the world has ever known; and the discovery and development of the richest gem in the diadem of its States—California; the emerging of civilization from the bigotry, intolerances and ignorance of centuries; the enlightenment of religion; the higher and more general education of the masses. As an outgrowth of all this education, of all these discoveries, of the birth of geniuses—as one of the results of all this ingenuity which has placed this century upon the pinnacle of immortal time—we have the birth of our profession.

No one can spend a day or an hour at a session like this without learning something that will be of advantage to himself and his patients. We have been taught in these assemblages not only by those who are considered the wisest but by those who may be deemed the least capable.

No one, however ignorant, but may stumble upon a truth that has eluded the most learned; and it is here that he will tell it. Simple learning will not make a man a good worker; it often happens that the humble but honest toiler achieves results that have baffled the more learned and distinguished practitioner. What he lacks in education he may compensate for by greater skill and good sense. The educated man is often a theorist, but with a vague idea of those details with which his less favored and uncultivated brother has been compelled, from his humble entrance in the profession, to make himself acquainted; hence the uneducated dentist is often the more skillful and practical man. He has to feel his way along the foundations, and in doing so discovers gems that the theorist overlooked. It is the slave and not the master, who discovers the diamonds; the humble diver, not the merchant, who brings up the pearls.

These remarks are made, not for the purpose of detracting from the high culture our colleges impart, for they are a *sine qua non* to the welfare, standing and progress of our profession, but for the double purpose of making the learned respectful to those who are not, and placing the non-graduates on a closer footing with the alumni, so we shall have theory and practice combined.

The great advantage of these associations is that they bring together all classes of the profession, all orders of mind and practice; and in the papers read, reports presented, and discussions that take place, ideas and facts are brought out of the utmost utility, that, from the modesty or disinclination to write on the part of the discoverer, would never otherwise be known.

Association has the effect of developing thought, lessening rancor and jealousies, clearing misunderstandings, awakening interest, one in another, forming friendships and so uniting the profession and advancing it in its great and humane work. I tell you, brethren, that the man who remains away from these sessions because he "can learn nothing" is a fool to himself; and he will one day find, to his sorrow, that he has been passed in the struggle for superiority even by those members whom he held in most disdain.

Napoleon said to his army in the Italian campaign: "Let the humblest soldier feel that he has a marshal's baton in his haversack." So, let each one of you feel that he is an integral part of the profession; that he is a working and necessary factor among his fellows; that upon each one devolves a certain responsibility to purify and elevate this profession, and that by earnest work, skill and ability each may reach the topmost round of the ladder, so that not only the baton of the marshal may be within your grasp, but the eagle of supremacy may be your glory.

Let us not indulge in acrimony, but give to one another patient, respectful and considerate attention. Let each say what he has to say in the pure spirit of professional interest. Let no false delicacy, restraint or pride stand between us and knowledge. Remember that it is not alone for ourselves that we meet here, but for the interest of humanity. Let us be manly, truthful, earnest and inquiring; and as we do our part with integrity of purpose, so shall we be blessed in our mission, those coming to us benefited, and our profession glorified.

Now comes the advantage of collaboration and association. Here was Dr. Pierson, who, years before Barnum's discovery of the rubber-dam, had used a rubber sheet over an isolated tooth. It had never occurred to him that by punching other holes he could use it over a series of teeth. But at that time there was no fraternization, and he had no opportunity of giving to his brethren the utility of his appliances and of awakening suggestions. And so, years afterwards, Dr. Barnum of New York, where association was already established, made known this discovery, which has been of such inestimable benefit to the profession, and by which Barnum has reaped the glory which would have been Pierson's had he had the benefit of association at the time of his original discovery. I never was struck so forcibly with the necessity for association and collaboration as by this incident of Dr. H. H. Pierson of Sacramento. Here was a man who had immortality in his grasp, dallying with an invention which would have enshrined his name in the hearts of the profession and brought to him the gratitude of a suffering humanity. Here was a man with an opportunity that comes so seldom and to so few; and yet, unconscious of the priceless worth of the gem, for want of contact with his fellows, let it slip from his grasp to be picked up years afterward by Barnum of New York.

It was not only that Dr. Pierson lost the personal benefit of this discovery, but that the profession of the world was delayed for nearly a decade in the application of this great aid to perfection in operative work. We know in this one particular what we have lost by non-association; we know how inventions have been kept secret and so delayed professional progress for years at a time. Perhaps this very session may develop something that should have been known by the world at large years ago. Perhaps the association of so many earnest minds will evolve something that will advance our profession twenty years. Perhaps some truth will grow out of this convention that will immortalize it. Who knows? May God make it so!

THE SHEATHS OF NEUMANN AND THEIR CONTENTS.

BY A. H. SAWINS, D.D.S., DENVER.

[Read before the Midwinter Fair Dental Congress.]

IT has been the custom of almost every ambitious dentist for many years to exhaust his efforts and ingenuity in trying to discover some means by which to overcome the sensitiveness of dentine. Hundreds of ingenious devices and thousands of drug formulæ have been carefully prepared for local applications, with but little success. Neither do I believe that there ever will be anything like a specific, as a local application in this troublesome condition, and to convince one's self of this fact it is only necessary, I think, to study a little more closely the tissue with which we are dealing.

The sensitiveness of dentine resides, as we all know, in the soft protoplasmic fibres (Tomes' fibres). These odontoblastic processes extend from the surface of the pulp toward the periphery of the dentine, and for the most part end in the granular layer; before reaching this situation, however, the most of the fibres divide one or more times in a dichotomous manner.

The sheaths of Neumann are the immediate walls of the canals through which the fibrils run; these sheaths are made up, as nearly as we can determine, of a peculiarly modified form of protoplasm, with a large per cent. of phosphorus; the sheaths are thicker and stiffer in mature dentine than in young dentine, growing thicker as age advances, at the expense of the lumen of the tube.

The substance of the sheaths themselves is easily destroyed by heat, but is almost indestructible by chemicals—so much so that strong nitric or hydrochloric acid will scarcely dissolve them, unless heat be applied.

This substance is found to follow the fibril throughout its extent and forms its sheath, and in thin sections, especially in young dentine, with a good high power lens, may be seen what appear to be sheaths extending from tube to tube, joining them nearly at right angles. These connecting branches are what I wish especially to call your attention to, as they seem to exist as channels of development only; their sheaths, if they have any, are very thin, and the lumen, which is no doubt occupied during the period of development, by living protoplasm, later is found to be calcified full, so that in adult dentine no fibrils are found to occupy these connecting tubes or branches. This fact was clearly shown, I think, by Dr. Carl Rose, by taking very thin sections, in which the connecting branches are visible and placing the same on a slide with a drop of hydrochloric acid, warming the slide so that the specimen will be partly decalcified, afterward washing and examining.

By repeating this we find that when decalcification has proceeded far enough, the connecting branches will have disappeared, leaving only the tubes proper and their true dichotomous branches.

By this arrangement you will see it is quite impossible for any medicine to reach the soft fibril without first destroying its sheath, which, as we have seen, is very indestructible.

Where the sheaths have been destroyed by caries, or other means, so that the tubes are left open and the fibrillæ exposed to the action of drugs, then there is no doubt but that such fibrils can be successfully obtunded, and perhaps others, to a very slight degree, through the granular layer.

We have seen that the contents of the sheaths of Neumann are the processes of a layer of cells on the surface of the pulp (the odontoblasts).

Whether or not any nerve filaments enter the dentinal tubes has been a matter of much speculation for many years by our most able observers; while non-medullated nerve fibres have been demonstrated in the human body, of sufficient fineness to occupy only one-tenth of the lumen of the tube, no nerve filaments have as yet been proven to enter them. While at the same time no observer can experimentally say that no nerves exist in the dentinal tubes, I wish to make an explanation of a few deductions which to me seem pretty conclusive that nerves need not exist in the dentinal tubuli, in order that these afferent impulses may be transmitted to the brain.

It is found by physiological research that the substance we call protoplasm may take on almost any modification to suit the office which it is called upon to perform—two of the modifications which will serve best for illustration here are *contractility* and *conductivity*.

That protoplasm possesses the property of contractility, as is shown in muscular tissue, no one will presume to doubt. Its conductivity is easily shown by experiment on the fibres of striated muscles, the protozoa, etc. In the striped or voluntary muscle fibre, which is stimulated only at one point by the terminal nerve ending (the motorical and plate), the impulse runs down the fibre where there is no nerve and causes it to contract; or what is still more evident, dissect out the biceps muscle of a frog and hang it up by one end—hang a slight weight to the other end; now stimulate the muscle by a single contraction shock from the battery, and you get a large contraction; thus you see that these protoplasmic fibres, without any nerves whatever, convey the impulse from the point of stimulation, down the muscle, through its entire length, which is evidenced by the contraction which we observe; or in the protozoa, the amœba will contract and change its shape on mechanical stimuli.

Thus we see that an impulse may be transmitted, or a contraction produced, without the presence of nerves. Is it not, then, fair to presume that the sensitive protoplasm in Tomes' fibrils transmits the impulse received from the instrument to the nerve filaments of the pulp without the presence of nerves in the fibril? Do you say that this is an afferent impulse, or impulse of sensation, and is therefore different from a motor impulse? If so, I will cite another example. We all know that a fly crawling over our hand produces so much mechanical irritation that it will often set our whole nervous system in a state of uneasiness, and yet, no one would presume to say that the feet of the fly actually come in contact with the nerve endings. We cannot imagine, much less prove, that the peripheral nerve-endings actually extend through to the open surface of the skin, and therefore it must be the sensitive protoplasm lying between the fly's feet and the nerve ending. These cells, by being irritated, doubtless contract, or in some way, produce mechanical pressure against the nerve-endings, and thus the sensation.

Physiology teaches us, however, that the impulse is not the contraction, but a kind of discharge which precedes the contraction. This would lead us to strongly suspect that the sensation which we receive, when a revolving bur is tearing off the sheaths and their fibrils in our sensitive tooth, is due, not to the presence of actual nerves in the fibrils, but to this sensitive protoplasm receiving and transmitting (either by contraction or otherwise) the impulse from the instrument to the nerve endings in the pulp, and possibly, and I think very probable, that the protoplasm in these fibrils, by constantly receiving and transmitting mechanical and thermal impulses from the surface of the tooth, actually become more nerve-like in their character as age advances up to a certain period, as we may well observe the tissue of the pulp from early childhood to old age—changes entirely out of recognition.

CARE OF THE BICUSPIDS.

BY DR. J. M. WHITNEY, HONOLULU, H. I.

[Read before the Midwinter Fair Dental Congress.]

ACCORDING to my observation no teeth in the human mouth are so frequently neglected, and so poorly and unwisely treated by the average dentist as the bicuspids. During my recent journey across the continent of America this observation was forced upon me repeatedly—on the railroad car, in the hotel and the home. Persons from all classes of society exhibited that yawning chasm behind the cuspids which should only be seen in the lower animals; not only showing the loss of these important teeth, but leaving the imagination to picture much greater ravages than had really taken place.

In answer to the frequent question, "Is it worth saving?" I have for many years said to my patients: "If the choice lay between the loss of a central and a bicuspid, I should much prefer the former." The reasons for this are manifold. The centrals and laterals are more easily substituted as far as hiding the misfortune is concerned.

The bicuspids are much more important in the labor of properly preparing the food for the further process in digestion and assimilation, and substitutes but poorly do the work of natural teeth. The bicuspids, especially the second superior, assist in conveying the saliva from the parotid gland to the lower part of the oral cavity, and if lost the saliva must be left to flow about the corners of the mouth, very greatly to the annoyance of the individual.

We cannot see these vacant spaces in the mouth of a lady who may be a stranger to us without an inclination to pronounce a verdict against her personal care for herself, and against her dentist or want of a dentist; and no future acquaintance can reconcile us to the very great disfigurement of face and feature.

If, then, these teeth play such a great and varied part in the attractions and future welfare of our lady patients especially, what ought we to do to best preserve them?

From the time they are first erupted until the age of 18 or 20 years is attained they ought not (except in rare cases) to be free from the care of a painstaking conscientious dentist for more than three months at a time. If white spots appear, showing that they are attacked by caries, polish out these spots if possible, and, if not conspicuous, cover with nitrate of silver. If too deep for this, and but slightly beneath the enamel, excavate and fill with phosphate. If a larger cavity, and the patient is under 14 years of age, fill for the time with Hill's stopping. If your patient is one over whom you have any control, and who will meet appointed engagements, do not use amalgam. We are only justified in using this when for financial reasons much dental care is impossible, or when health or circumstances forbid long operations and quarterly visits to the dentist.

When the time has come to replace the temporary with the permanent filling, if the mesial and distal sides are both affected, I should prepare them both together by cutting away the sides sufficiently wide so that they should become self-cleansing. Let the sides be parallel with each other with a slight difference in width in favor of the inside. Let the bottom of the cavity be perfectly flat with the right-angled edge slightly beveled by a small gold-finishing bur, being sure it reaches below all softened or white spots, and so low that when the teeth knuckle together at the top they shall be fully separated at the base of the gold. The place to religiously guard is at the lower inner and outer corners. If the greatest care is not taken this will be left thin and frail, and will be first to yield.

After the cavity is cut sufficiently wide and parallel, with a thin chisel get the inner and outer cleavage of enamel, and to the border cut the dentine on a bevel. Now put on a double matrix made of German silver or taggart tin, and between these place your Marshall matrix-holder. This is the only holder I have ever seen that will properly and firmly hold the matrices in the place you need them, and at the same time be wholly out of the way.

If all is properly adjusted you now have both cavities matrixed, and with a perfect contour touching at the center near the cutting edge. Into each cavity carefully pack Wolrabs gold cylinders (ends always facing outwards), and with a rounding Royce plugger just large enough to well fill the cavity, mallet solidly the foundation of one cavity and then the other. Then, with a small flat plugger, mallet all the borders in place. I never use a round plugger for a flat surface, and vice versa, unless I am directing the end of the plugger against the border of the filling. You will now see the beauty and necessity of your bevel edges, for you will be able while the matrix is firmly in place to make a more perfect border than can be made without the matrix. I must think that a man who says that a tooth cannot be perfectly filled with a matrix has never studied the situation carefully, or else he cannot fill a simple cavity in the grinding surface of a molar, for one is about as easy as the other.

After the foundation is laid you can add more soft gold or begin at once with cohesive gold. The admirable thing about Wolrab's gold cylinders is that while they are as soft as tin and as easily adjusted, cohesive gold can be used with sufficient union so that it can be begun at any point or place in the operation.

After the gold is in place remove matrix-holder and matrices, adjust a Perry separator, and widen sufficiently so that the nicely-rounded surfaces shall not be flattened while polishing the little that will be necessary, looking well that the interdental spaces have all due care, being careful there is no overhanging gold to irritate the gums.

I have found through many years of experience that this method of handling these most difficult and at the same time most important teeth has given great satisfaction.

OPENING ADDRESS OF MIDWINTER FAIR DENTAL CONGRESS.

BY IRVING M. SCOTT, PRESIDENT UNION IRON WORKS, S. F.

MR. PRESIDENT, LADIES OF THE MIDWINTER FAIR DENTAL CONGRESS AND BROTHER DENTISTS (I am entitled to use the term "brother" to you by virtue of the profession which I follow, and the experiences it has given me in filling of cavities and plugging up of holes in armor plates): In behalf of the sciences and industries we welcome you to our city with warm hearts and open mouths. The stereotyped phrase "with open arms" is here changed to "open mouths" out of respect to your profession: a profession which comes down to us with the high and venerable indorsement and sanction of ancient times.

Jacob's blessing to the tribe of Judah was couched in the following terms: "His teeth shall be white with milk." Lord Chesterfield said that clean white teeth are among the first recommendations to be met with in common intercourse with society. Lavater said the countenance is the theatre upon which the soul exhibits itself. As are the teeth of a man so are his tastes. Well-cleaned, white and well-arranged teeth are not seen save in an acute, honest, candid and faithful men. Short, broad teeth, close together, show tranquil, firm, strong men. Melancholy people seldom have well-arranged, clean and white teeth.

In one of Judge Tourgee's novels the character of Pactolas Prime, a bootblack, whose shop was lighted with a half-pane of glass intervening between the top of the sidewalk and the ceiling, was so accustomed to study the feet of passers-by, as they appeared through this light, that he could tell the character of men by the kind of uppers that they wore on their soles. So in dentistry: a skillful dentist reads the character of a man by the kind of teeth that he presents.

The Brahmins were particular and delicate in every point relating to their teeth. Dentistry had a respectable standing among the ancients. Herodotus speaks of it being practiced in his time in Egypt. Belzoni found artificial teeth of ivory and wood, and teeth filled with gold among the remains of the mummies. Galen speaks of dentistry in the second century of the Christian era.

Dentistry was introduced into the United States during the Revolutionary war by Le Mair, who came over with the French army.

The first American dentist was John Greenwood, who operated in New York City in 1788, and in 1790 he had the honor of repairing the teeth of the Father of his Country—the immortal Washington. In 1792 Dr. Spence practiced in Philadelphia. He was a pupil of Le Mair. In 1800 Dr. H. H. Hall began practicing in Baltimore. There are now more than 20,000 dentists in the United States.

What a magnificent reply the dentists of America made to France in return for the loan of Le Mair. They have since supplied the leading practitioners from great American dentists. Dr. Evans, formerly of Philadelphia, was enabled by his skill to dictate to the crowned heads of Europe when it was his pleasure to have them show their teeth, and, by means of his influence and great wealth, was the chief factor in aiding the Empress Eugenie to escape to England after the fall of Sedan.

The relation of iron to the healing art is the excuse for my being here. What would dentistry be without the art mechanic and the wonderful and ingenious mechanical devices which enables its practitioners to perform the delicate and difficult work that is now required of dentistry?

This century is prolific of the advancements of dentistry in all directions. Dr. Spooner of Montreal first used arsenic for devitalizing pulps in the year 1838. Then came Hill's stopping or capping system, covering the nerves of badly affected teeth, so as to allow filling above the capping. From Bonwill's electric mallet see what a multitude of ingenious electrical devices have originated; Kell's electric system; Jeffrey's electrical dental engine and Edison's contribution to dental electrical mechanical science. Barnum's rubber-dam, with its steel clamps, made possible many an intricate operation, to say nothing of the great satisfaction the elasticity of a dam gives to the average Californian; the matrix of Louis Jack; Dr. Arthur's corundum wheels, and that wonderful mixture known as Wedgewood's ware for artificial teeth made in England, down to our own Dr. Younger's implanted teeth.

The old science has become humane. In my boyhood days the remedy for a defective tooth was to "yank" it out. Now the old root is worth saving as a foundation upon which to build some of the wonderful dental structures of the day. The whole treatment is that of healing the diseased tooth, filling the cavities, building up faces and alleviating the diseased condition of man.

A good set of teeth should be more appreciated on this coast than elsewhere, because of the great variety of toothsome things which Nature is ever pouring from her wonderful cornucopia, all for the comfort and pleasure of man. For this reason every Californian, Oregonian or Washingtonian, wants to be equipped with a magnificent set of molars, and here in time will be developed the highest state of the profession. You are to be congratulated with the annual addition to the personnel of the corps and the mechanical devices for carrying out the requirements of your profession. But however young and vigorous your new graduates are, or however recent your late invention, we of San Francisco hope always to be able to show you a "Younger."

You, men of the Pacific Coast, must realize the difficulty of your position. You are so far from the center of supplies, from the throbbing life of inventions. that you are thrown on your own resources, and possibly that is the key to the originality and boldness of the dental profession on the Pacific Coast.

There are other professions on this coast which have overcome the e difficulties of distance and isolation, and carried their practice up abreast of the best on the Atlantic Coast, and I am sure that in the future the dental profession of the Pacific Coast will be found leading the world.

The selection of this hall, belonging to the Academy of Sciences, for your exercises is appropriate and complimentary. This building is dedicated to the knowledge of the sciences which add to the comforts, enlightenment and intelligence of man, and it is right and proper that all branches of science and all scientific attainments should gather around the Academy of Sciences as a nucleus, from which comes the best accomplished work of that great body of workers whose achievements are for the betterment of mankind.

And now, in conclusion, the Union Iron Works extends its heartiest welcome to the dental profession, and offers you its tugboat "Rockaway," at any day, at any wharf, and at any hour that you may select, to take you down to Mission Bay and let you see, in place of Knowlton's continuous gum denture, a permanent gun indenture; in place of Carr's anchored plates we will show you the armored plates of the "Oregon," and wish you success and God-speed in your enterprise.

REPORTS OF SOCIETY MEETINGS.

MIDWINTER FAIR DENTAL CONGRESS.

DISCUSSION

Of Dr. A. H. Sawins' paper, entitled "The Sheaths of Neumann and Their Contents," which is printed in full at page 323 of this number.

Dr. Dunbar.—Mr. President, this paper seems to me to be one difficult of discussion, because there is such a variance of opinion as to the existence of the dentinal sheaths, or "Sheaths of Neumann," so-called. Their existence is absolutely denied by no less an investigator than Professor Suddeth, who, in refuting their existence, shows the original formation of dentine to be a modified bone formation, and, as such, claims that there could be none of the vital manifestations in mature dentine by the processes of the odontoblast (the dentinal fibrils) if the dentinal sheaths exist. Those who favor the existence of the dentinal sheaths claim that the use of strong hydrochloric acid is the only means by which you can demonstrate them. That with strong hydrochloric acid and heat you can destroy the entire dental tissue, including the organic matrix, the sheaths alone being left. Now, if the sheaths are in existence, and can be so demonstrated, it would certainly very materially alter our views regarding tooth structure, particularly tooth nourishment. I, for one, am disposed to take the view of Professor Suddeth in this matter, and should be inclined to think that we must look further for a good reason for the insufficiency of obtunding agents. I doubt if there are many practitioners of dentistry—and I may include medicine as well—who can give you an intelligent idea of what the sheaths of Neumann really are, and to what extent they might affect dental practice. For my part, in the teaching of histology, I have recognized the theory only in a passing mention, to say that certain things occur in the deposition of lime salts, in the formation of dentine, which disprove the existence of the dentinal sheath as a distinct membrane. I have paid no further attention to it; however, it seems to me questionable, even granting their existence, that their presence would in any manner retard the action of medicaments applied to reduce the sensitiveness of dentine as has been so ingeniously stated by the essayist.

In looking over the field, after being asked to open this discussion, I discovered such a variance of opinion that I returned to the paper again and with a good deal of difficulty endeavored to extract from it the author's intent. Did it point the way for the practical dentist to treat sensitive dentine? It is quite possible, as Dr. Sawins says in his paper, that no nerve filaments, as such, really extend through this protoplasmic fibril. I am inclined to think, however, that the odontoblast itself (the original odontoblastic cell) is ganglionic in its office, and these processes (the fibrils) receive the afferent impulse and transmit it; in that way acting ganglionically. Some claim that the existence of the sheath can readily be demonstrated by breaking up a tooth chemically into its original components, leaving the sheaths of connective tissue as a series of tubes, which I think is a highly improbable result. Practically there is no such thing left as a series of pipestems after the dentine is dissolved out, and the organic tissue obliterated, as any one may determine for himself. These are just a few thoughts in connection with the subject, and only partially presents the theory of the opposition.

In regard to the treatment of sensitive dentine, and the so-called sheaths of Neumann being a barrier to medicinal action, I am inclined to seriously doubt it, as before stated. Usually sensitive dentine means the exposure of the terminal ends of the tubuli. These are certainly amenable to medical treatment. We have mild escharotics in variety that have been used, and besides medicinal cauterants we have found heat effective. We know practically, as practical men, that these agents will obtund sensitive dentine.

Dr. S. E. Knowles.—Mr. President, I think the practical purpose is to try to point out some way to render dentine less sensitive. Dr. Sawins, I think, gave a very ingenious explanation of this peculiar property of protoplasm. Certainly, whatever the facts may be, whether the fibres really exist or not, and that is seriously questioned, the idea has been advanced that the fibres themselves were simply due to post-mortem action; that in the live condition they did not exist in the form in which we find them when microscopic examination is made, the idea being that when dead a change took place, something similar to the change which takes place in the fibrin of the blood when coagulation takes place. Certain it is, whether or not the fibres really exist, we know there is something in the tubes of the dentine that is susceptible of transmitting sensation. I think we have ample evidence of that. Whether they be nerves or not—and they probably are not—they certainly perform the functions of nerves. We have evidence of that in every-day life. Heat is transmissible, like motion, magnetism or electricty. Now, the theory advanced by the writer of the paper, that protoplasm has the power of taking on these protean functions—of transmitting in the same manner that nerves do—is certainly a plausible way of explaining it. But there is another way, it seems to me, that is even more simple than that. I suppose you all know that the circulation through the tubes is very sluggish. We apply medicine for the purpose of treating sensitive dentine that acts well in other parts, and we find practically there is a failure to obtund. Take cocaine, for instance; when it first came out many who investigated it were sufficiently enthusiastic to suppose that the control of the sensitiveness of dentine had been accomplished. Now, I think it is potent in dentine as well as in other tissues, but we would have to pickle the tooth in cocaine for about six months to anæsthetize the dentine. This, in my mind, is the secret of the whole thing. There is no red blood in the dentine. The circulation is very slow indeed. While the remedies are potent enough, they cannot be made to reach the parts desired. That, I believe, is the true explanation of it. There was something said by the gentleman who opened the discussion, Dr. Dunbar. I don't remember exactly what the expression was, but there was something said in regard to the bone-like condition of the teeth. What was that, Dr. Dunbar, you spoke of?

Dr. Dunbar.—A similarity in the laying down or deposition of tissue, it being often called tubular bone, and its capability of being nourished. There is a difference of opinion in regard to tooth nourishment, if you will allow me to explain. I know investigators differ. I claim there is a demonstrable circulation in the teeth, that it acts in two ways. I have the authority of an old investigator and practitioner for this; it is not an original theory, but is as old as practice almost, that teeth are nourished, once formed; and this nourishment could not exist if these sheaths were as impervious as the paper indicates.

Dr. S. E. Knowles.—I don't think there is any question in regard to the nourishment of teeth, from the fact that dead and live teeth are differently affected while still in the mouth. Dead teeth in the mouth are in a condition less likely to be preserved than if they had been taken from the body, because heat and moisture favor the breaking up of the material of which they are composed. Germain to this is the peculiar constitution of the enamel, the probability is that not more than 3 per cent of it is organic. If it has any vitality it must be of very slight degree. You might almost as well assert that a cobblestone has vitality. The enamel occupies a relation anatomically much the same as the epidermis does to the true skin. Of course the enamel layer is permanent, but still in the arrangement it is somewhat similar. By the way, that is an idea that I advanced in a treatise more than twenty years ago, that if the enamel has vitality, being a superficial layer, it is the only case in the entire body where the surface or mucous membrane communicating with the surface retains any vitality at all. The superficial layer is not vital. I think the paper is one of very great merit, and I am sure we are all glad we have had the privilege of listening to it.

Dr. Dunbar.—Mr. President, in regard to the existence of nerve filaments in the fibrils or the processes in the odontoblast, it seems to me there is a practical test. I have heard it stated somewhere as a theory, but which a little reflection and personal test will assure you is a fact, that in mastication, when you get anything of a hard character between your teeth, there is a disposition to *feel* it with the teeth. That you can determine without looking at the substance what it is, whether it is a piece of lead or a bit of coal, glass, or some of the many things that get into food, no matter what. You can determine, as a rule, the nature of the hard substance by the touch. Similarly you can affect the tactile corpuscles of the finger. You can tell with your eyes closed by touching with a long finger-nail the character of almost any substance. You don't require a very long investigation to tell whether you are touching a piece of wood, marble or cloth. I speak of an extra long nail, because that would make it absolutely necessary to clear the material of the ball of the finger, with which of course you would normally feel; you can tell very nearly what the texture of anything is with the nail. You affect the tactile corpuscles from the root of the nail through the nail body. I think there are tactile corpuscles in the stratum granulosum or in the interglobular spaces at the ends of the tubuli. This is only an idea of mine. In fact, I do not think it is important to prove it. If we are careful of our diet, I do not think we need feel with our teeth very much. But I am inclined to think this demonstrates that the external layer or covering forms no barrier to sensation, or to the effect upon the tactile corpuscles. The transmission of sensation is much the same as it would be through a lengthy nail. The fact that you can distinguish between different classes of substances so tested seems to me to demonstrate the existence of tactile corpuscles somewhere in tooth structure.

Dr. Lane.—Mr. President, Dr. Dunbar states that we are quite aware that the tubuli of the teeth are susceptible of being obtunded with local applications—medication. It might be interesting to a great many practitioners in this Congress to know from you, as a teacher, what medication he would use to obtund that hypersensitive tissue?

Dr. Dunbar.—I will say, in response to Dr. Lane, that I have found that the well-known carbolized potash, or a mixture of equal parts of crystallized caustic potash and carbolic acid (the crystals with water enough to dissolve) acts as a mild cauterant, and a very excellent one. If the stratum granulosum is exposed by friction, as it is upon the ten anterior teeth by vigorous use of the toothbrush, a saturate solution of nitrate of silver is very effective, this simply darkens it, staining it quite black sometimes. The stain may be allowed to remain for a few days, and is subsequently polished off, which will generally remove the sensation, although a renewed application may be necessary. There was formerly a vigorous objection to the use of nitrate of silver as an obtunder. This happily does not obtain now. In locations where, from the nature of the tissue lost, it is desirable to insert a gold filling, preparing a cavity, aided by the use of carbolized potash, will usually remove all sensation. Where no filling is to be inserted you can generally within forty-eight hours polish off the stained dentine or exposed spot, using polishing powder on cork disk, burnish it with a smooth burnisher, and have no more trouble, for some time at least, until further friction develops renewed sensibility. I have found nitrate of silver a reliable obtunder in these cervical abrasions. There are numerous other obtunders, but for every-day use I have placed my reliance upon carbolized potash.

CALIFORNIA STATE BOARD OF DENTAL EXAMINERS.

At a meeting of the California State Board of Dental Examiners, held June 22d, at the office of the Secretary, the following were granted certificates to practice on their diplomas:

Vogel, Thomas A	Los Angeles
Wilcox, W. I	San Francisco
Wadsworth, W. H	Ukiah
Taylor, W. J	Sacramento
Jewell, W. S	Oakland
Gibbon, John A	San Francisco
Gray, R. F	San Francisco
Graham, G. F	San Francisco
Deichmiller, Conrad	San Francisco
Chappell, McCoy	San Francisco
Cavell, W. H	Modesto
Wood, C. C	Modesto
Vogelman, D. J	Modesto
Grainer, O. T.	Lakeport

By virtue of previous practice:

Gates, O. J	Eureka

Duplicate:

Smitt, Uriel	Stockton

The Board will meet for the examination of candidates for certificates to practice dentistry in the State of California, at the DENTAL CLUB ROOMS, No. 235 Post street, San Francisco, Tuesday, August 7th, at 9 o'clock, and continue four days.

It will be necessary for all persons who may desire to engage in the practice of dentistry in this State to secure a certificate from this Board upon a diploma from a reputable dental college, or after an examination in dental surgery, as required by the Act of March 12, 1885. In examining applicants for certificates to practice dentistry the Board will examine into the branches of anatomy, physiology, pathology, histology, hygiene, materia medica, therapeutics, chemistry, metallurgy, operative dentistry, dental jurisprudence and prosthetic dentistry. Examinations will be both written and clinical. Seventy-five per cent. will be required on the written examinations, and in addition a satisfactory clinical examination will be required of all those who are successful on the written examinations.

Each applicant must come prepared to do any work designated for him. The Board will furnish chairs, engines, vulcanizers, and all necessary material.

J. D. HODGEN, D.D.S.,
Secretary.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

THE National Association of Dental Examiners will meet Monday, August 8, 1894, at Old Point Comfort, Va.

It is desired that every State Board be represented at this meeting. A thorough report of the work done by each is urgently requested. If no representative can be in attendance the report (all of which must be written) may be mailed to Secretary there.

J. D. HODGEN, D.D.S.,
Sec'y Nat. Ass'n Dental Examiners.

CORRESPONDENCE.

MEETING OF THE AMERICAN DENTAL ASSOCIATION AT OLD POINT COMFORT, VA.

EDITOR PACIFIC COAST DENTIST: Arrangements are under way, but have not yet been completed for a reduction in railroad fare for the annual meeting of the American Dental Association to be held at Old Point Comfort, Virginia, August 7th next.

We expect a reduction of one and one-third fare for the round trip on the "certificate plan." In order to get this reduction, full fare must be paid in going to the meeting, and a receipt taken therefor from the ticket agent at the starting point. This receipt (certificate) must be countersigned by the Secretary of the Association at the meeting, and will enable the holder to return for one-third fare—provided, one hundred certificates are presented, showing that at least that number have paid full fare on the various railroad lines entering the place where the meeting is held.

A circular giving full particulars will be mailed later to all members and to those who apply for information.

J. N. CROUSE, Chairman.
2231 Prairie Ave., Chicago, June 18, 1894.

WHERE IGNORANCE IS FOLLY, 'TIS BLISSFUL TO BE WISE.

EDITOR PACIFIC COAST DENTIST: A young lady of uncertain age came to my office the other day. She was a very *nice* young lady; had a new black cord for her glasses; held one little white hand on the other, and said the head-rest was uncomfortable. Her father is a doctor, who insists that he can cure intermittent fever with the fifth attenuation of chloride of sodium (notwithstanding the patient takes one or two ounces daily with his food). He introduced me as "Mr.——" with the remark "this is the man who pulls teeth."

Well, after she had been seated in the chair, I felt justified in having her rinse her mouth with peroxide of hydrogen before proceeding. I then began excavating the shell of an upper molar, making some remarks about the extent of the decay, etc.

Fearing, perhaps, that I did not fully understand the true relations of the dentist and the patient, or the dentist and the doctor—I don't know which—she began to enlighten me by saying that "she didn't see how anybody could ever be a dentist: that digging at old rotten teeth would be perfectly disgusting to her; but papa said that they were necessary creatures, and she supposed that somebody had to do it."

I held my breath for a moment, then said as calmly as I could that it was indeed unpleasant sometimes; but we got along very well, since the "rottenness" was always in the other fellow's mouth. (Her papa has not paid the bill yet.)

A WESTERN DENTIST.

CHLORIDE OF ZINC MOUTH-WASH.

EDITOR PACIFIC COAST DENTIST: I take pleasure in sending to you for publication the following recipe for a "Chloride of Zinc Mouth-Wash," which I have used with satisfaction for several years. In prescribing, the dentist can have his druggist keep a supply ready-made, and so avoid the annoyance of writing so long a prescription. To Dr. E. C. Kirk of Philadelphia is due the credit of calling attention to the value of chloride of zinc in the treatment of chronic affections of the alveolo-dental and gingival membranes. I am indebted to Professor A. L. Lengfeld for the following method of compounding:

℞

Zinci Chlor.	oz.	vij
Ol. Anisi.	"	iss
Ol. Gaulthar	"	ijss
Tr. Caryaph	drachms,	iij
Tr. Vanillæ	"	iij
Tr. Card. Co	"	v
Spts. Vini Rect	"	iij
Aq. Destil	"	ij
Saccharin.	grs.	v

M. Sig.: Mouth-wash (wintergreen flavor). A few prefer peppermint to wintergreen.

Use a teaspoonful in a half tumblerful of water as a mouth-wash. Respectfully yours, L. VAN ORDEN.

San Francisco, June 18, 1894.

A QUERY ANSWERED.—"J. W. R.": The California State Dental Association still exists, and will meet in San Francisco July, 1895. Luther A. Teague is President; W. Z. King, 1001 Valencia street, San Francisco, is Secretary.—[ED. P. C. DENTIST.

OBITUARY.

DR. LORENZO A. VARNEY.

DIED at Windsor, Vermont, April 28, 1894, of typhoid fever, Dr. Lorenzo Allison Varney, in the thirty-second year of his age.

Dr. Varney was born at Brompton, P. Q., October 7, 1862. He commenced the study of dentistry with Dr. H. E. Williams of Windsor, Vermont, with whom he formed a partnership in 1888, after a course of lectures in the New York College of Dentistry. He was ambitious, and was recognized as a skillful dentist. He was a member of the Vermont State Dental Association, was a Mason, and an earnest and active member of the Congregational Church.

In 1890 Dr. Varney was married, in Rutland, Vt., to Miss Effie A. Perkins, and she and one daughter survive him. In the community he was regarded as a man of sterling integrity, and one who discharged with intelligence and fidelity every trust reposed in him. His early decease is much regretted by a large circle of relatives and friends.—[Dental Cosmos.

EDITORIAL.

THE CONGRESS.

THE guests of the Congress have come and gone. We hope all the wiser, the more determined to spend sometime in investigation and study, and the more willing to place their names upon the rolls of our local and State societies.

The meeting was an awakening to all. No one expected it to be half what it was. There was much associated with the meeting that all well-wishers for the advancement of the profession may be sorry for; that many might sincerely deprecate; and so will disgusting skeletons float in the wake of our great meeting. But there was so much of real merit, and so much that we were obliged to congratulate ourselves upon that we may good-naturedly overlook at least the peccadillos of the first meeting for fear of being called a pessimist. True, most of "the boys" got their pictures in the papers; a few "fakirs" were rung in on the Membership Committee, and some, whom the Congress had striven to make respectable, went home and loudly proclaimed that they "had shown those fellows down there something to open their eyes," etc. But, take it as a whole in the "wild and woolly West," it was not so bad after all—if we do say it ourselves.

We are more than indebted to those who came from the East, and the members from Oregon and Washington; we expected more of them; but we are sure they will all be on hand next time. Nor shall we allow the exhibits to go in this connection unmentioned. No meeting ever had better; and the purveyor went back to his busy mart more willing to acknowledge that California was in the United States; and the practitioner was convinced that the manufacturers were not such a terrible lot of highwaymen after all. Simmered down, the feeling arose this time too far to be choked back. To whom is the laity more greatly indebted, the dentist or the manufacturer?

There will be another such meeting some day. The PACIFIC COAST DENTIST timidly advanced such an opinion, and it was promptly acted upon. As a result we have the following resolution offered by Professor C. L. Goddard:

WHEREAS, The Midwinter Fair Dental Congress has proven a grand success; therefore be it

Resolved, That a Pacific Coast Dental Congress be held at the discretion of the committee, hereinafter provided for, either during the year 1896 or 1897; and be it

Resolved, Further, that a general committee be formed as follows, viz:

First.—Five members shall be elected by this Congress by ballot and without nomination.

Second.—Each Dental Society of not less than ten members, State or local, now in existence or hereafter formed with the code of ethics of the American Dental Association governing them; each organized reputable dental college faculty, and each Board of Dental Examiners on the Coast shall have the privilege of electing one of their number as a member for this committee for each twenty members of said society, or fraction thereof.

Resolved, That this committee of five shall organize temporarily by electing a Chairman and Secretary, who shall notify each dental society, dental faculty and Board of Dental Examiners to elect its members of this committee, and that as soon as the committee is thus increased to fifteen members the Secretary *pro tem.* shall call a meeting for organization and election of permanent officers.

Resolved, That this general committee shall select the place and time of meeting of the Congress, appoint sub-committees, make all arrangements, transact all business, and six months before the time of meeting shall elect a President and Secretary-General, who shall preside over said Congress.

The election that followed resulted in the formation of the following committee of five: C. L. Goddard, W. J. Younger, W. F. Lewis, R. H. Cool, L. A. Teague. Immediate steps will be taken toward organization.

THE banquet on Friday evening, June 15th, was indeed a grand success, notwithstanding but few of the San Francisco and Oakland members were present. Covers were laid for one hundred and fifty, and a more enjoyable evening was never spent.

The officers of the Congress feel very proud—and justly so—that no one of the many means of entertainment extended cost their guests a dime. The day at the Fair; the magnificent luncheon given by the President; the college evening; the banquet for visiting members and their ladies; two tugboat excursions on the bay; the bull'shead breakfast, and the visit to the

Union Iron Works were all provided by the Dental Club, San Francisco Association and local members.

In this the Congress was very different from another so lately held, at which all felt that, even though the fee was large, no provision was made for such kindnesses. It is therefore with a just pride that California still claims the palm for thorough generosity and hospitality. The bull'shead breakfast, though quite well attended was not the success anticipated on account of the unseasonable rainfall. The committee evidently neglected to "fix it" with the weather clerk, and will know better next time.

SAN FRANCISCO WANTS THE A. D. A. CONVENTION NEXT TIME.

DELEGATES from San Francisco to the Columbian Congress made an attempt to induce the American Dental Association to meet in this city this year, but failed, Old Point Comfort being too strong. Instead, the Congress just finished was held; but we wish it understood that we are still in the race with Lookout Mountain, Niagara Falls or any other place; and our delegates are instructed to bring greetings, backed with a determination to succeed this year.

We need the help the Association will give us to complete what has been begun by our Congress, and nothing will be left undone to make it a great meeting if held here. A number of prominent members promised the PACIFIC COAST DENTIST to use their influence for us this time, and we trust they will not forget their promises.

THE DENTAL CLUB.

THE Dental Club has become a permanent organization, with the following officers: W. J. Younger, President; R. H. Cool, Vice-President; W. F. Sharp, Secretary; H. G. Richards, Corresponding Secretary, and J. A. W. Lundborg, Treasurer.

Besides being the rendezvous for the members and their friends, it will be the meeting-place for the San Francisco Society, the Board of Examiners, and other dental organizations. Its membership numbers about twenty-five at present. Put your name down for election.

APOLOGY.

WE felt obliged to give space to the Midwinter Fair Dental Congress papers in this number that otherwise would be given to the numerous other manuscripts sent in. Thank you for the articles, and they will receive our attention as soon as possible.

THE Dental Club is deeply indebted to Mr. Byron Mauzy for his kindness in donating the use of one of his elegant pianos.

PUBLISHERS' NOTICE.

THE DAILY EDITION.

THE daily edition of the PACIFIC COAST DENTIST was the talk of the Congress. Hampered in every way possible the sixteen-page edition was gotten out at 9 o'clock promptly every morning, in spite of all, and every one was generously and gratuitously supplied with it.

It was in every sense a daily paper, containing all the papers read before the American Medical Association, Oral Section, the official programme, and editorial matter. In order to give our regular subscribers the benefit of this, all five were bound and sent out as the June number.

From now on the PACIFIC COAST DENTIST will publish in full all the papers, discussions and transactions of the Congress as fast as current space will permit.

Send in your name immediately as a subscriber. Price, $2.50 a year, postpaid to all countries of the Postal Union; other foreign countries, $3.00.

The remaining numbers of this volume containing the transactions of the Congress will be sent, postpaid, for $1 in advance.

Address, Pacific Coast Dentist Publication Company, 1005 Sutter street, San Francisco, U. S. A.

KALEIDOSCOPIC.

Dental Law for Utah.—Following is the text of an act regulating the practice of dentistry in the territory of Utah, passed by the last Legislature, and approved by the Governor, March 8, 1894:

Be it enacted by the Governor and Legislative Assembly of the Territory of Utah, as follows:

SECTION 1. It shall be unlawful for any person, who is not at the time of the passage of this act engaged in the practice of dentistry in this territory, to practice dentistry therein unless he or she shall have obtained a certificate as hereinafter provided.

SEC. 2. A Board of Examiners, to consist of five practicing dentists, is hereby created, whose duty it shall be to carry out the purposes and enforce the provisions of this act. The members of said Board shall be appointed by the Governor, from the dental profession of the territory at large. The term for which the members of said Board shall hold their offices shall be three years, except that two of the members of the Board, first to be appointed under this act, shall hold their office for the term of two years, and three for the term of three years, respectively, and until their successors shall be duly appointed and qualified. In case of a vacancy occurring in said Board, such vacancy shall be filled by the Governor in conformity with this section.

SEC. 3. Said Board shall choose one of its members President and one the Secretary thereof, and it shall meet at least once in each year, and as much oftener and at such times and places as it may deem necessary. A majority of said Board shall at all times constitute a quorum, and the proceedings thereof shall at all reasonable times be open to public inspection.

SEC. 4. Within six months from the time that this act takes effect it shall be the duty of every person who is now engaged in the practice of dentistry in this territory to cause his or her name and residence or place of business to be registered with said Board of Examiners, who shall keep a book for that purpose. The statement of every such person shall be verified under oath before a Notary Public or Justice of the Peace in such manner as may be prescribed by the Board of Examiners. Every person who shall so register with said Board as a practitioner of dentistry shall receive a certificate to that effect, and may continue to practice as such without incurring any of the liabilities or penalties provided in this act, and shall pay to the Board of Examiners for such registration a fee of $1. It shall be the duty of the Board of Examiners to forward to the County Clerk of each county in the territory a certified list of the names of all persons residing in his county who have registered in accordance with the provisions of this act, and it shall be the duty of all County Clerks to register such names in a book to be kept for that purpose.

SEC. 5. Any and all persons who shall so desire may appear before said Board at any of its regular meetings, and be examined with reference to their knowledge and skill in dental surgery; and if the examination of any such person or persons shall prove satisfactory to said Board, the Board of Examiners shall issue to such persons as they shall find to possess the requisite qualifications a certificate to that effect, in accordance with the provisions of this act. Said Board shall also indorse as satisfactory diplomas from any reputable dental college recognized by the National Association of Dental Examiners, upon the holder furnishing evidence satisfactory to the Board of his or her right to the same, and shall issue certificates to that effect within ten days thereafter. All certificates issued by said Board shall be signed by its officers, and such certificates shall be *prima facie* evidence of the right of the holder to practice dentistry in the territory of Utah. One member of said Board may grant a license to an applicant to practice until the next regular meeting of the Board, when he shall report the fact, at which time the temporary license shall expire; but such temporary license shall not be granted by a member of the Board after the Board has rejected the applicant.

SEC. 6. Any person who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction may be fined not less than $50 nor more than $200, or be imprisoned in the County Jail not less than one month nor more than three months, or by both such fine and imprisonment for each and every offense. All fines recovered under this act shall be paid into the common-school fund of the county in which such conviction takes place.

SEC. 7. In order to provide the means for carrying out and maintaining the provisions of this act, the said Board of Examiners shall charge each person applying to or appearing before them for a certificate of qualification the sum of $10, which fee shall in no case be returned; and out of the funds coming into possession of the Board from the fees so charged and penalties received under the provisions of this act all legitimate and necessary expenses incurred in attending the meetings of said Board shall be paid, and no part of the expenses of the Board shall be paid out of the territorial Treasury. All moneys received in excess of expenses above provided for shall be held by the Secretary of said Board as a special fund for meeting the expenses of said Board and carrying out the provisions of this act, he giving such bonds as the Board from time to time direct. And said Board shall make an annual report of its proceedings to the Governor by the first of December of each year, together with an account of all moneys received and disbursed by them pursuant to this act.

SEC. 8. Any person who shall receive a certificate from said Board to practice dentistry shall cause his or her certificate to be registered with the County Clerk of the county in which such person may reside, and the County Clerk shall charge for registering such certificate a fee of one dollar. Any failure, neglect or refusal on the part of any person holding such certificate to register the same with the County Clerk, as above directed, for a period of six months shall work a forfeiture of the certificate; and no certificate, when once forfeited, shall be restored, except upon the payment to the said Board of Examiners of the sum of twenty-five dollars as a penalty for such neglect, failure, or refusal.

Sec. 9. Any person who shall knowingly and falsely claim or pretend to have or hold a certificate of license, diploma or degree granted by any society organized under and pursuant to the provisions of this act, or who shall falsely, and with intent to deceive the public, claim or pretend to be a graduate from any incorporated dental college, shall be deemed guilty of a misdemeanor, and shall be liable to the same penalty as provided in Section 6.

Sec. 10. Nothing in this act shall be so construed as to prohibit any one from extracting teeth.

Sec. 11. This act shall take effect and be in force from and after its approval by the Governor.

Fatal Cocaine Poisoning.—Reclus reports a fatal accident consecutive to the injection of cocaine into the urethra of an old man of seventy-two, subject to atheroma and angina pectoris. A doctor called to him on account of retention of urine from hypertrophy of the prostate, after ineffectual attempts at catheterism, performed vesical puncture. Wishing to try the catheter again, he injected from fifteen to twenty grains of a five per cent. solution into the urethra. The patient became pallid, was nauseated and fell dead. Solution should not exceed one or two per cent.—[Times and Register.

Rubiform.—The following recipe is taken from the *Western Druggist*, vol. 13, p. 394:

Castile Soap, white	9 dr.
Glycerine	9 dr.
Syrup	4 fl. oz.
Water	26 fl. oz.
Alcohol	26 fl. oz.
Tincture of Cardamom	½ fl. oz.
Tincture of Canada Snakeroot (1:16)	½ fl. oz.
Oil of Peppermint	45 m.
Oil of Wintergreen	45 m.
Oil of Cloves	12 m.
Oil of Cassia	12 m.

Ammoniacal solution of Carmine sufficient to color.

Mix the soap, glycerine, syrup and water; stir well and add the alcohol. Add the remainder of the ingredients, let stand a few days, and filter at a low temperature so that no soap will afterwards precipitate.

They Say: That thymol, locally applied in the hollow of a tooth, is a relief for toothache.

That chloral hydrate in hair tonics relieves dandruff.

That hot water relieves delirium tremens—distills the alcohol out, as it were.—[Pacific Druggist.

THE
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ORIGINAL COMMUNICATIONS.

SCIENCE IN DENTISTRY.

BY EUGENE S. TALBOT, M.D., D.D.S., CHICAGO.

[Read before the Midwinter Fair Dental Congress.]

IN the April issue of the *Dental Cosmos* of the present year there appeared a thoughtful editorial on "The Scientific Status of the Dental Profession," in which it was held in effect that, in this country, the art of dentistry had outgrown the science; that our profession was tending toward a mechanical rather than a scientific excellence. It is not my intention here to combat or controvert in any sense the opinion of the writer, in which, indeed, I most fully share, but to call attention to certain aspects of the question that appear to me to have been left partly undeveloped, or at most, merely suggested or touched upon.

Dentistry in America has, so far, been a natural growth; it has developed from the needs of our people. The white race, not yet perhaps thoroughly acclimated to our extremes of climate, coming here as pioneers and undergoing the physical changes necessitated by the altered environment—the effects of mixture of races, new habits of diet, and especially a most rapid, and, as it were, abnormal mental stimulus—under all these new conditions, has, with the need, developed the remedy to an extent perhaps greater than in any other part of the civilized world.

The art of dentistry owes more to America than to any other

NOTE.—The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in this country.

country, as the standing and success of American dentists abroad during the past forty or more years sufficiently demonstrates. It is in this country also that the first systematic efforts at special dental education were made; where the beginning of the elevation of dentistry from an art to a learned profession was first attempted; and, whatever may be the status of dentistry here or elsewhere, so much must rightly be attributed to the credit of American dentists. The amount of human suffering that has been made unnecessary by the inventive genius of the dental profession of this country is incalculable, even when not taking into account its share in the giving of that priceless boon of surgical anesthetics to the world.

In the natural evolution of things, however, a new state of affairs has been produced, one that requires a certain change of face on the part of the dental profession, if it is to hold what ought to be its proper place in the scientific world, and in the estimation of the public. While dentistry was only an art we easily held the lead, and it was not an unnatural presumption for us to think that progress on the same general lines that had so far lead to success would fail us no more in the future than in the past. We had created practical dentistry as an independent profession in which our pre-eminence was recognized throughout the world.

In doing this, however, we have narrowed our field and separated ourselves from those who should recognize us as co-workers in a common field of usefulness. Dental surgery is a branch of medical science; it is really a specialty in the broader field of medicine. While this is the truth, which no one who considers it can gainsay, it is practically ignored by the public and by ourselves. There is no reason why a surgeon who limits his practice to the oral region should be less of a physician than one who confines himself to the eye, the nose or throat, or the pelvic organs; the collateral relations of the one are not less extensive than those of the other. Yet, at the present time, a dentist ranks lower in popular estimation, I think we must all admit, than a physician or surgeon.

If I interpret correctly a recent decision, this view has received judicial sanction, and is part of the judge-made law of the land. To-day the dentist stands, to the public, somewhere between the physician and chiropodist; his social position approaches the former; his professional rank as a specialist, outside of the lines of legitimate medicine, is nearer than we could wish to the latter.

I state these facts, as to the unsatisfactory status of our profession in certain respects, as a preliminary to what I wish to say as to its present needs which have been so ably commented upon by the editor of the *Dental Cosmos*. The time has come it seems to me, for us to take a higher stand to elevate our specialty, not only in popular reputation but in fact. We have one great advantage: the prestige of American dentistry from its past is good, and is only now threatened by the danger that we underestimate the importance of further progress. The world recognizes our manual skill and invention, and it is not a small matter that the leading teacher of dentistry in Germany, if not on the continent of Europe, should be an American, with all the honors that it is possible for a German university to bestow upon him. We have in this the advantage over our brethren in general medicine, for, notwithstanding what the world owes to American physicians in the progress of medical science, European writers have not yet learned to look to this country leading in the scientific branches of the profession. That this will be less the case in the future no one who observes the tendencies of American medicine at the present will doubt; and it should be our wish and our earnest effort that American dentistry should also continue the progress it has made. At the present, as Dr. Kirk says, the tendency is too much the other way; "no one who even superficially observes the matter can fail to see that our trans-Atlantic *confreres* produce an aggregate of scientific work in dentistry which far exceeds the output in this country in the same lines." This being so, and continuing to be so, it is inevitable that American dentistry must fall in the estimation of scientific men, and, as their dicta are followed invariably by the reading and thinking public, it must therefore decline still more in popular estimation.

There is no good reason why this should be so, and such reason as exists is not any defence for the actual conditions. Americans are not intellectually behind their co-workers in other lands; the ability to do scientific work is not lacking, nor are there in dentistry the deficiencies that exist in some other departments as compared to those abroad. Our clinical facilities are as extensive as those abroad, and our powers of observation certainly are not inferior. The real difficulty is the lack hitherto of the scientific spirit, and of what I may call the scientific atmosphere, which is the encourager and breeder of the spirit of scientific research. Nevertheless this is coming to us, if it is not here; and, as Dr. Kirk says, there is, even now, "a proportion, small though it may be, of workers in the dental ranks who find or make the time to investigate problems in dental science which have a wider scope and broader application than the direct utilitarian." Were there more of these, and could they impress upon the whole of our profession a little of their spirit, the conditions of which I now complain could not exist. The trouble is that we have too much adopted what Mr. Howells says is the ideal of our country—business success—as our aim and not kept sufficiently in mind that "wisdom is the principal thing," and that with all our getting, we should get understanding. We do not seem to understand what scientific work is, or how to go about getting it.

If we wish our profession to stand high in this country we should follow the lead of the regular medical profession that is now in almost every section raising its qualifications, and that has always had an ethical ideal which, although sneered at by the laity, has kept it, even at its lowest stage, within the traditions of a learned profession. At the present, in all our great centers, like New York, Philadelphia, Boston, Baltimore, etc., there is a large body of physicians acknowledged to be equals of any in the world, and their influence and example are elevating all the rest. I think I am safe in saying that, while there yet remains much to be desired, the time is coming and will probably be within the lifetime of some of us when there will be centers of medical education in this country that will turn the tide to some extent, and students will cross the Atlantic to sit at the feet of the masters on this side. The reproach that American medical science is in its "kindergarten" will not be, I think, much longer justified.

What is needed now is that American dentistry should raise its standard and make its reputation as a scientific specialty of medicine, not a manual art. Hitherto it has been one of the easiest ways to get a living—no thorough educational qualifications, no strict ethical observance, and, in short, no high grade of professional honor or feeling being universally exacted of its followers. Our cities are full of purely commercial dentists, who organize in associations, incorporate themselves for profit, and advertise without scruple or limit. To the general public we are all on one level, and that is apt to be the level of the lowest in its estimation. This is to a great extent due to the fact that some of the teachers in our colleges are men of mercantile propensities, uneducated, and in some instances not only dishonest but unprofessional. We should expect students graduated from such institutions to develop into a lower order of professional life.

To make dentistry a recognized specialty in medicine we will have to demand a medical education in the broadest sense for our dentists, and I believe that it is in this way that true reform will have to be effected. If the dental profession of some State would work for a law modeled somewhat after some of the medical practice acts that are now going into execution, requiring every one who enters the practice of dentistry after a certain date to show proofs that he has received a liberal and a medical education, and to stand an examination, not only in dental manipulation but also in the general principles of medical science, we would elevate our profession at once. It would be but a few years until the dentists of that State were appreciated both at home and abroad; they would take rank among their medical *confreres*, and share the advantage of wider association and a broader field of work and usefulness. With a medical education dentists could with a great advantage do a large share of the facial surgery that now passes into other hands.

With such a change the charge that American dentistry is not scientific could not long be justified. Instead of literature "replete with statements and arguments based upon mere speculation, with no foundation of fact beyond that constructed in the brain of the originator," we would begin to have reports judiciously made, original observations and scholarly criticisms upon those of others. Our people are observing and ingenious, and what they most generally lack is not the power of observation but the education that will enable them to know what to observe. This can only be obtained by study, and can only become general with a higher grade of mental and scientific culture than we have hitherto deemed an essential for membership in our profession. However observant and ingenious a man may be, unless he knows what others have already done, he must waste his mental energies in vain in uselessly going over their work, and the publication of the results of his labors, however strenuous, instead of ranking him with the discoverers, gives him the credit only of his ignorance. There has been a vast amount of misapplied mental labor in this particular direction. I have in mind four men of ability who have contributed largely to the literature of the profession, in which hardly an original idea has been added to advance the progress of our specialty; a lifetime having been wasted in laborious work which has not borne the fruits desired.

Even when really original observations are made, this defective knowledge stands in the way of due credit being given to their author. The world does not look for figs on what it is inclined to consider as thistles, and valuable facts may be ignored or overlooked because they are published where no one looks for them, or because they are hidden among the mass of comparatively worthless material that emanates from so many writers whose only ability is to rehash old facts or emit baseless speculations or commonplace generalities. To be sure this is also done abroad, but there is less of it and at least a reputation of more scholarship and original work. They are now learning to respect American medical science more than was formerly done, and yet "*Americana sunt, non legunter*" is too often their off-hand disposal of really meritorious contributions from this side of the ocean. Some eighteen or twenty years ago a New York physician published a paper, giving out views, based on observation, that within the past few years have revolutionized opinions in regard to an important class of ailments the world over. A German author recently, in alluding to them said, in excuse for the neglect they had met with in his country, that they originated in America, where medical science had been up to the present and still is in its "kinderschule." The "certain condescension in foreigners," that Lowell satirized, is often still too manifest in medical matters, and it should be the wish and endeavor of every true American to do away with any just ground on which it can be based. I say nothing of unjust ones, for I trust we are not a people who will willingly submit to injustice.

If American dentistry wishes to keep the rank it has won in the practical development of the art, in its present more scientific phases, it must raise its standards of culture and require of its practitioners a higher grade of acquirements, both general and professional, than has heretofore been its rule. I see no better ideal for it than that of being considered as a specialty in the great field of medicine. To be recognized as such we must widen our studies and be able to view our work in all its relations to the human system; a specialist who is not also a well-educated physician is justly not in good standing in the medical profession. I care not what views are held by others in regard to the study of our specialty, if any advancement is made it can only be accomplished (as I have said over and over again) by obtaining a broad, liberal, medical education. We must cultivate a liberal professional, rather than a commercial, spirit in our specialty. We may not be able to realize this ideal at once, but we can work toward it, and that it will be attained, if we desire it, I have no doubt. We cannot look to the medical profession to come to us; the lesser cannot include the greater; but it has abundant room to take us in, and there is no doubt of its good will if we only accept the conditions it imposes upon its own members. For the present we might look for a friendly appreciation only; an organic union is only a possibility of the future. But by standing still, or following some of our present tendencies, I fear the difference between us, both as regards professional standing and public estimation, will widen instead of diminish.

DENTISTRY IN ITS RELATION TO GENERAL MEDICINE.

BY GEO. H. CHANCE, D.D.S., PORTLAND, OR.

[Read before the Midwinter Fair Dental Congress.]

HOWEVER much American dentists may differ with each other in their respective views concerning the practice of dentistry and its supposed relationship to general medicine, medical men, with perhaps a few marked exceptions, have ever held but one opinion on the subject: they believe and hold that dentistry is a mechanical art only, and that dentists are members of a mechanical craft, and as such are not entitled to professional recognition from medical men. It will, therefore, be the purpose of this paper to show, if possible, that whatever may have been the dentistry of the past, the dentistry of the present is both a science and an art, as well as a liberal profession, and in order to show this in the most effective manner I shall, with your permission, gather and arrange in order a few familiar facts of dental history, hoping thereby to clear away the fog that in some minds seems to have heretofore surrounded the subject.

There is abundant evidence to show that from the earliest period of which there is any record means were devised and used for the preservation of man's teeth, and when, from lack of saving skill or from other causes, the natural organs were removed substitutes of ivory, bone or wood were used to repair the loss. In the time of Herodotus the art of dentistry appears to have been practiced in Egypt as a distinct branch of surgery. Little, however, is known of the attainments of those early practitioners.

Artificial teeth are alluded to by several of the Greek and Latin poets, but the earliest treatises on the subject were written by Galen some time in the second century. These seem to be about all the world had until the works of Fallopius, Eustachius and Ambrose Pare appeared: the first in the fourteenth, the second in the fifteenth, and the third in the sixteenth centuries, respectively. From advertisements in newspapers of 1703 the practice of scraping and cleaning teeth, as well as making artificial substitutes, appears to have been done by silversmiths and jewelers exclusively, and presumably the barber-surgeons did the extracting.

Later on, in the eighteenth century, several medical men in France and England wrote on the subject of the teeth, among the most prominent of whom was the celebrated Dr. John Hunter, who may justly be regarded as the father of the English school of dentistry. The subject, however, was treated anatomically and philosophically, rather than from a practical standpoint. These, and those written at a somewhat later date by Drs. Blake, Fox and others, served rather to elucidate the physiology of the teeth and the nature of the diseases to which they are subject than to the method of treatment.

In the early part of the present century the French seem to have taken the lead in dental matters, and to have written the greatest number of works on the various branches of the subject. It is to France that we are indebted for the introduction of porcelain in the manufacture of artificial teeth, and it was a Frenchman who introduced the practice of dentistry into the United States of America. This occurred during the Revolutionary War, and the dentist referred to was Le Mair of the French forces, which joined our Continental army at that time. Following Le Mair was an Englishman named Whitlock. The first native American dentist was Mr. John Greenwood, who established himself in New York city in 1788. It was, as most of you know, Mr. Greenwood who, in 1790, carved in ivory an entire set of teeth for George Washington, and duplicated them in 1795, both sets of teeth being held in place by attaching spiral springs to the plates. Following Greenwood other dentists soon appeared in New York, Philadelphia and Baltimore, their practice, however, being confined to filing, cleaning and extracting teeth, and providing substitutes, mostly of ivory.

Dr. Hudson, formerly of Dublin, Ireland, who located in Philadelphia early in the present century, is believed to be the first practitioner in this country who directed his attention to the care of dental diseases and to arresting the progress of dental caries.

In 1820 the number of dental practitioners in the United States was a little over one hundred, all told, and ten years later, as estimated by Dr. C. A. Harris in his work on the "Principles and Practice of Dental Surgery," there were about three hundred, of whom not more than one-sixth were properly educated or instructed.

In view of these facts, a few of the more advanced and better educated men of the profession of that day agreed among themselves that a specially educated and consequently better qualified class of persons ought to take the place of the barber extractors and silversmiths in the treatment of the dental organs, and several ineffectual attempts were made to have medical men adopt this branch of the healing art, and teach the same in the medical colleges, but the medical men would have none of it. Therefore, meeting with nothing but opposition and antagonism from the medical profession of that day, the fathers of modern American dentistry founded the Baltimore College of Dental Surgery in 1839, and published in the same year in the city of Baltimore, the *American Journal and Library of Dental Science*, the first publication of its kind in the world. The next step was the organization of the Society of Dental Surgeons, and at the second annual meeting of this society the *Journal*, by purchase, became the property of the association. To the State of Maryland, then, and to the city of Baltimore belongs the honor of founding the first dental college, and conferring for the first time the new degree of "Doctor of Dental Surgery," and thus forever establishing American dentistry as an independent scientific profession. In 1842 another society of dentists like that of Baltimore was organized at Richmond, Va., and in August, 1844, a third society was formed at Cincinnati, Ohio. In August, 1855, the National Convention was organized through the active exertions of Dr. Elisha Townsend of Philadelphia, where the first annual meeting was held, Dr. John B. Rich of New York being its first President.

Thus it was that these worthy priests and prophets of the old regime, headed by Dr. Chapin A. Harris, led benighted dentistry out of its worse than Egyptian darkness into the Caanan of professional light and liberty, directing its votaries across the Red Sea of despairing doubt, and along the dreary shores of medical intolerance and false dental philosophy into a land of professional sunshine and future promise.

With this brief sketch of the history of dentistry in the past it will need no argument to prove that modern dentistry is not the outgrowth of, nor the offspring of the medical college, and that the degree of Doctor of Dental Surgery is a new creation, apart and distinct from the degree of M.D. Therefore, dentistry is altogether unlike any other so-called specialty in general medicine, yet, at the same time, no one will deny or question the fact that dentistry is a legitimate branch of the healing art, and that up to a given point, the instruction imparted in either branch must be derived from the same source, and must be of the same general character, but when the principles underlying and common to both professions have been reached a natural divergence must of necessity take place, the dental student being obliged to look elsewhere than to medical professors for that information, instruction and experience which will qualify him for the practice of dentistry, and hence the necessity of special schools for that purpose; so that the dentistry of to-day is not what it is because of the aid received from the medical men. Why, bless you, it is not so very long ago, comparatively speaking, when a dentist was considered a sort of a nondescript mechanic, a fellow who performed certain menial services for suffering humanity that were considered beneath the dignity and standing of the general practitioner of medicine to perform, and who was only too glad to have such fellows step in and relieve him of this insignificant and undignified labor. Owing to the onward march of our profession this condition of things is rapidly passing away; still, even as late as the year 1890 the Census Bureau of this country thought it was doing the right thing when it classed dentists with manufacturers, and required them to make a showing of the number of "false teeth" they had manufactured during the preceding year; but, thanks to the action of some of the progressive men in our ranks, together with an enlightened public sentiment, the error was corrected. The average physician of to-day may admit the semi-respectability and usefulness of the dental surgeon; yet he will in nowise admit that the doctor of dental surgery is anywhere near the equal of the doctor of medicine. If you would like to know what some of these medical men still think of dentists, let me read an editorial published in a recent number of the New York *Medical Record:*

"THE DEFECT IN THE DENTIST.—The dentists of America are the best in the world, but they are nevertheless away behind the mark. We appreciate their ingenuity, their skill, their drills and dams, their composite fillings and artificial teeth. They make the best kind of gold crowns, but they do not deserve to wear them. This is because they do not sterilize themselves or teach their patients how to prevent caries. They are wonderful patchers-up of things half gone, but they do not show us how to prevent the going.

"There is hardly a dentist (there are a few) who works in an aseptic way or uses aseptic instruments. Some do not know any better; some do not think it necessary. But both are wrong; the one class should learn, the other class should think. How many dentists can tell surely when they are dealing with a syphilitic mouth? Yet if such a mouth is being treated we do not believe that anyone would like to be the next patient though the dentist should first wash his hands.

"The mouth is a rich culture-ground for microbes; and caries, it is taught, is a microbe disease. Yet the dentist is content to fill the teeth, then disburse a bottle of his own special mixture of chalk, orris and wintergreen, and tell the patient to brush his teeth *bis die*. The ordinary tooth-brushing is entirely ineffective in preventing caries or disinfecting the mouth. For this purpose a genuinely antiseptic wash is needed, and this should be used for a considerable time. Just what this wash or powder should be, and just how long it should be used, is one of the things the dentist should find out. Let the American dentist devise a way of making the teeth and gums aseptic and preventing caries. He will then be greater than if he had invented a new filling or novel drill, or transplanted a whole jawful of teeth."

Thus it is that medical ignorance and professional pharisaism begets exaggeration and untruthfulness on the part of medical men when they attempt to criticise the dentist and his methods in dealing with the teeth. But, as there can be no effect without an adequate cause, it ought not to be a matter of surprise to us when we see such twaddle regarding dentistry in the leading medical journals of the land, if we consider the fact that there are only seven or eight out of all the medical colleges in the United States which give any special attention to the teeth and their diseases, and it is owing to the lack of technical knowledge on the part of the physician which leaves him unable to avoid mistakes in diagnosis when the disease is of dental origin, the physician often mistaking effects for causes, resulting in much unnecessary human suffering, sometimes ending in the loss of life.

But the world moves, and with thirty-eight reputable, well-organized and well-equipped dental colleges in the land; with State and national examining boards; with dental laws (not yet as good as we desire) for the protection of the public against dental quackery in nearly all of the States of the Union, together with the ever-forward movement of the profession at large, the educated doctor of dental surgery need not feel abashed if once in awhile he receives a professional snub from some shallow-pated M.D. who professes to think that there is nothing to be learned about the human body, in whole or in part, outside of a medical college. All of this we know to be a mistake, and, while it is doubtless true that but few of us could at a moment's notice give the origin and insertion of every muscle in the foot, as that is not in our line of practice, nor perhaps could we correctly diagnose a case of appendicitis as quickly as one who practices along those lines, any more than one of those know-it-all M.D.'s.—be he allopath, homeopath, magnetic healer or faith-curist—could correctly diagnose a complicated case of odontalgia, nevertheless we know what we know, and the thoughtful, common-sense educated physician knows, and our intelligent patients know, that dentists know some things that a professedly know-it-all M.D. does not know, but should know, while at the same time we do not forget that we do not know many things that the physician knows. As

"Division of labor" our motto has been,
And the good we have done is plain to be seen.
There are some things we don't know; but still it is clear,
Though we don't know it all, we are not in the rear—

But at the front, marching shoulder to shoulder with our brethren of the medical profession, and with them keeping step to the music of progressive medical science and improved methods of treatment.

Modern dentistry then is, in the broadest sense, both a science and an art. As a science, it deals with a full and an accurate knowledge of the dental organs and their functions, as well as with a knowledge of the causes leading to their pathological conditions whereby disease is engendered, and function either impaired or destroyed.

As an art, its votaries are instructed in and made acquainted with the various methods and means for combating dental and oral disease, to the end that health may return and, wherever possible, function restored; so that it is quite safe to say that dentistry is science applied to dental and oral surgery. And it is quite as safe to say that medicine, when stripped of its scientific adjuncts, major and minor surgery, is largely a system of guessing at probabilities in disease, with a fearful lack of harmony existing among the guessers, divided as they are into belligerent camps, some large and "regular," and some large and "irregular," besides other small camps of various construction, with guessing schools attached to each camp, teaching different theories, and each claiming to teach the only true simon-pure method of guessing and of practice. And these, forsooth, are they who assume to write and publish their guessing criticisms on the dentist and his methods; one of these pharisees from the large and "regular" camp gravely guessing that dentists are not sufficiently sterilized to prevent infection from syphilitic patients when they apply to the dentist for treatment of the oral cavity.

Then there is the brother from the "irregular" camp of guessers, and he guesses that dentists ought not under any circumstances use amalgam for filling cavities in defective teeth, because he guesses that the potency of the dynamic force of his fifteenth dilution medicinal dynamo will be destroyed by coming in contact with the wandering mercurial spooks, which he guesses may inadvertently escape from between the meshes of the amalgam plugs. But surely we are not as ignorant as some of these probability guessers take us to be, and really do know more about some things than they give us credit for; for, is it not true that dentistry has taken in charge and has become the custodian of the heretofore medically neglected entrance to the temple of human life, and, by its manipulations and sanitary measures, enabled the sentinels and guards stationed within the portal to thoroughly inspect and to carefully prepare the life-sustainers for their work, before permitting them to pass to the inner recesses of this wonderfully constructed temple, and in so doing has brought back to the pallid cheek the bloom of health when these guessers' drugs have failed?

Dentistry has discovered the cause, and is daily successfully treating 90 per cent. of all the cases of so-called "facial neuralgia" whose victims apply to the dentist for relief. It has also vastly improved upon the methods formerly in vogue by the medical profession for the surgical treatment of tumors of the oral cavity, as well as fractures of the jaws, simple or compound. It has aided and abetted the aurist and oculist in their efforts to restore function. It was a dentist who first thought out and who first put to practical use that boon of boons, anesthesia, and who gave his thoughts and his experience to the medical profession and to the world without fee or reward. What has here been stated as standing to the credit of dentistry is but a tithe of what it has accomplished and is destined to yet accomplish in the interest of suffering humanity, in spite of adverse medical criticism.

It may not be inappropriate at this point to notice a few of the differences existing between the practice of dentistry and that of medicine. Now the "medicine man," whose office was in former ages merged with that of the priest and prophet, and who also was thought by many to be gifted with supernatural powers in the art of healing the sick, has from time immemorial exerted a seeming mysterious influence over the minds of the common people, sometimes for good, and sometimes for evil; and this seemingly strange influence exists to a more or less extent in the minds of the laity to-day; hence it is that the physician's opinion, when he is called to the sick-room, is deferred to in all cases almost without question; and to a certain extent this is right, for such confidence enables the conscientious, competent physician—and such can be found in every community—to treat the patient according to his own ideas and the exigency of the case, free from the ignorant interference of anxious friends. Besides this, very few of the laity possess any genuine knowledge of the *mysteries of medicine,* so that there are obvious reasons for this sometimes "blind faith" in the chosen physician, no matter from what school he may come.

Such things show us how very differently the physician and the dentist are held in public estimation; the services of the former being sought mainly for his supposed skill in the mysteries of medicine, while the latter is employed not so much for his technical knowledge, which of course he must possess, as for the special labor he is expected to perform; so that to succeed in our chosen calling it is not necessary that we should wear the badge of medical servitude by any means, for dentistry is the product of a higher and more advanced form of civilization—a scientific, independent profession, developed by master minds of a more recent generation, and not a *medical legacy* left us from a former period, when the medicine man was the only source to whom suffering humanity was taught to look for physical relief, and whose application was in vain when the malady was of dental origin.

Nevertheless, we can afford to congratulate our brother of the New York *Medical Record* in calling attention to our defects and to our mistakes in dental practice, as it shows that medical men, however late it may be, are becoming interested in dental matters. While it is true that we have made mistakes in the past, and still have many defects, and therefore do not deserve to "wear the crown," we would modestly assure our brother that we are constantly improving our methods by avoiding old errors; and, to further allay his anxiety in our behalf, we would modestly say that while admitting our many shortcomings, in reviewing our past practice we have had but little use for the sexton's "pick and spade," which it is hoped will be a source of great consolation to one so thoroughly "sterilized." We also beg to further assure our medical brother that it is our intention to keep up our studies and continue our original investigations, hoping and expecting thereby to keep in touch with the onward march of science in all other departments of human knowledge, for we fully realize that however ignorant the outside world may have been with regard to the mysteries of medicine, the manifold blessings which have accrued to mankind from the practice of conservative dental surgery has tended to remove much of the hypnotic medicinal mist which has heretofore obstructed the vision.

But the full purpose of this paper would not be accomplished did it not suggest a remedy, which, it is believed, if adopted would in a measure do away with these asperities and apparent antagonisms between the physician and the dentist.

Dentistry, like general medicine, is here to stay; both are needed, and both are without doubt intended as instruments in the hands of the properly educated for the relief of physical suffering, and so far as scientifically educated, limited human foresight can go, are also intended to be used for the *prevention of disease;* but such desired results can be reached in certain cases only in proportion as physician and dentist are willing to consult and co-operate with each other; and to do this intelligently and successfully each must possess that kind of an education which will not only fit him for practice in his own field, but must to a considerable extent overlap other branches of the healing art. While it may not take in all details, neither does such an education imply that a dentist shall practice general medicine, or the physician dental surgery.

Now this is precisely the kind of education that the dental student is supposed to and does acquire in the dental colleges of to-day; three full years of study and attendance on three full courses of lectures being required before the student can be graduated. It will be noticed that the time required to be graduated in dentistry is the same as that required for graduation in general medicine. It will therefore appear to the observant mind that if it takes three years to graduate a student in dentistry, and no more than three (soon to be four years) to graduate a student in general medicine, that there must be something more to learn in dentistry than the average physician with his present limited knowledge of the dental organs is prepared to admit. In view of all these facts it is pertinent to remark, that the coming medical man should, if only for his own reputation, be better informed upon the subject of the teeth than is the average physician of to-day, the teaching of which has (to use no harsher term) been sadly neglected in the medical colleges. Your essayist would, therefore, most respectfully but most earnestly recommend that a committee be created by this Congress, and under its supervision said committee be instructed to draft suitable resolutions setting forth the facts, and addressed to the medical profession at large, requesting the co-operation of its members with the dental profession in urging upon each medical college to add to its curriculum (if such has not already been done) the chair of dental histology and dental pathology, to the end that graduates in medicine may be better prepared to consult and co-operate, when necessary, with graduates of reputable dental colleges in the surgical treatment of the complex diseases of the oral cavity.*

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*NOTE.—No action was taken upon the recommendations of this paper following its reading because of the crowded condition of the programme. There is no doubt, however, but that the Congress was in hearty sympathy with the suggestion that all medical faculties should include a chair of dental pathology and histology.—[ED. P. C. DENTIST.

THE DENTAL ENGINE APPLIED IN SURGERY.

BY W. G. A. BONWILL, D.D.S., PHILADELPHIA, PA.

[Read before the American Medical Association.]

WHILE every medical man has heard and read of this instrument for the past twenty years, but few have ever witnessed the application of it in the surgery of the bones and tissues. Outside of Philadelphia—my home—it has been but little used, so slow are surgeons to take hold of new appliances, and particularly this engine, which, to so many, seems so formidable that, while they can not doubt its great efficacy yet they fear to handle an instrument driven at the high speed of from one to twenty thousand revolutions a minute.

The dental engine had been tried for minor operations and was better than nothing; yet it was not until this duplicature of the human arm and hand was developed, that it was possible to call it a truly surgical engine.

This I present you to-day, is the only type that is of any value and is based on the surest basal principles of mechanics. It is not necessary to describe it in detail. Suffice it to say that a look at its working parts will satisfy the most skeptical that it must do all that is claimed for it.

As a further guarantee of its value in surgery, I need but mention a few of those eminent in this line: both the elder and younger Gross, Agnew of Philadelphia, and Horsley of London. These are enough.

Be it said to the credit of the convervatism of surgeons, it would have been more largely used had I not parted with and sold it to a manufacturing firm, hoping to have it more extensively made and better and cheaper. But I made a great mistake. It is not too late to have it remedied. As you see it here in operation there is every element about it calculated to perform any operation in surgery on soft or hard tissues, and it is so simple any one can take care of it, and so cheap that any surgeon of extensive practice can afford to have one. Beside, it is so made that it is used for a dental engine and wherever it is to be found, in any town or hamlet, in the possession of a dentist, it can be borrowed at any time and made available for surgical work by simply adding to it a crank to give it higher speed; so that an amicable arrangement can be made with the dentists for its use, and they would be too glad to be of service in assisting the surgeon anywhere.

In this way the first cost to the surgeon is nothing, further than having a few instruments adapted for its special work, which would be but a trifle. Then, its universal presence could be relied upon at any moment and anywhere if it is in the possession of a dentist. This one item, of combining the dental with the surgical power, must militate largely in its favor and one's surroundings can be adapted to its use. This argument is no mean one. While not so good for the manufacturer, yet to the *user* of it a favor not to be resented.

Up to the time of the death of both of the Professors Gross, not an operation on the bones was performed but I did it for them.

As to Professor Horsley of London, he said before the Washington Congress: "Thanks to one of your fellow-countrymen—Dr. Bonwill. Without this engine I would not like to undertake the formidable operations I have to perform on the skull for removal of tumors and treatment of nervous affections."

Its range enables you to perform the most delicate as well as the most extensive operations, and can be confined to 100 revolutions or run up into the 1,000 revolutions.

It will remove in a few minutes the hardest osseous tumor, or with the diamond will cut a stone in the bladder into atoms.

In plastic surgery wherever tissues are to be united there is no loss of substance and success is more certain. In the bones, whether taking away the whole shaft leaving nothing but the periosteum for renewal of the parts—there is no necessity for opening into the bone further than merely exposing for access, thereby saving the severing of important arteries or interfering with nerve tissue. In the reduction of ununited fractures, and the absolute apposition with which they are afterwards held by special appliances, it is of great value.

It can be used in fractures of the patella without opening into the membranes. Removal of the whole of the superior or inferior maxilla without other access than by the mouth. Its aid with its special appliances enables you in fractures of the skull to elevate the parts without trephining.

Removal of the bones of the coccyx has been done in a few minutes and no injury done to the rectum or shock to the surroundings. With a special instrument I have, the vault of the cranium can be entered at any point without a trephine, and of any shape, without any danger of injury to the dura mater or much loss of bone.

In operations upon the cervix, the diamond wheels it carries at high speed chafe off the hardened tissues with but trifling loss, and enables the parts the more certainly to be brought in apposition, and left nearly the normal size of cervix.

It is unnecessary to speak further of its possibilities, as the ingenious surgeon would soon see that it would be his constant companion, and, when once he had learned to manipulate it, it would be as much of a *sine qua non* as it is to-day a part of modern dental surgery.

No one can estimate the value alone in time saved in all cases, and, from its high speed and capability of reaching 20,000 revolutions a minute, *pain* itself can almost or quite be annihilated or prevented; and, if nothing more, the shock is comparatively light, the effort at healing by first intention is made certain in every case, and from the smoothness of the bone cut, drilled, burred or sawed, there are no spiculæ of bone left to induce the least inflammation or necrosis.

AN AFFECTION OF THE JAWS AND TEETH IN LOCOMOTOR ATAXIA.

BY LEO NEWMARK, M.D., SAN FRANCISCO,
Physician to the San Francisco Polyclinic; Consulting Neurologist to the German Hospital.

[Read before the Midwinter Fair Dental Congress.]

CERTAIN diseases of the nervous system not infrequently attract by their effects on non-nervous tissues the attention of those whose usual studies are more or less remote from neurology. This is especially true of locomotor ataxia (tabes dorsalis), the most common chronic disease of the spinal cord, which may cause functional or trophic disturbances in diverse parts of the body. Thus, its influence on the eye, the stomach, the skin and the nails is always borne in mind by physicians concerned with the study and treatment of those organs. Among its most interesting effects are disturbances in the nutrition of the bones and the joints, resulting in spontaneous fractures or peculiar painless articular disorders. While the lesions of the osseous system of the limbs, although not very common, have become well known and are generally recognized as dependent on locomotor ataxia, there is a disease of the bone in another part of the body, which is of less frequent occurrence and which is not so well known; it is an affection of the jaws, involving the teeth, which, I think, will arouse the interest of dental surgeons. I therefore venture to submit a few remarks to you on the subject in connection with the history of a case which recently came under my observation in the Department for Nervous Diseases of the San Francisco Polyclinic.

The patient is a man 43 years old, who twenty years ago had three or four sores on his penis, followed by a swelling in either groin, which broke and discharged. No other consequences of that infection have since then been observed by him. His wife has borne him two healthy children; about eight or nine years ago she had two miscarriages.

Seven years ago, after great exertion in lifting a heavy weight, his present disease first manifested itself rather acutely by uncertainty in his gait, yielding of the legs, retention of urine and pains in the back and lower limbs. There was subsequently some improvement, but he has suffered more or less from lightning pains, difficulty in urinating, sexual debility and numbness of the thighs ever since. The shooting pains are especially troublesome, particularly at night, and it was in the hope of obtaining relief from them that he applied at the Polyclinic on the 6th of February last. Incidentally he remarked that, although he had never been afflicted with a toothache, he had in the course of the last four months lost all but three of his upper teeth. The loss of the teeth was preceded by neuralgia in the right cheek and temple. When the teeth fell out there was no pain and very little or no bleeding. Thus, while eating he would become aware that a tooth was loose, would easily extract it with his fingers and then proceed with his meal; or the tooth would not even require this extraction, falling spontaneously into his mouth. The patient furthermore related that two pieces of bone had been painlessly cast off from the left side of the upper jaw. For this affection of the teeth he was at that time under treatment at the College of Dentistry.

An examination of the patient's nervous system disclosed that his complaints were due to locomotor ataxia. Besides the symptoms complained of he presented loss of the knee-jerks, characteristic behavior of the pupils, anæsthesia in the lower limbs, and great unsteadiness when standing with his eyes closed. The subjective and objective symptoms leave no doubt as to the tabetic nature of his disorder. Two scars in the groins are evidences of the buboes; no other marks of venereal infection were detected.

In the upper jaw only the two middle incisors and the right wisdom-tooth remained. In a portion of the left side of the superior maxilla the gums were swollen, eroded and the bone was exposed and covered with pus; it was from this region that the exfoliation of bone had taken place. On the right the gums were in good condition.

Two weeks later the patient felt something loose at the site from which the two pieces of bone had previously been eliminated, and with his tongue he dislodged a third piece. This procedure was unaccompanied by pain. The third piece was preserved for inspection; it contains an alveolus.

At this period the set of lower teeth was complete, but there was much tartar on them, the gums were irritated, and for a few days past the middle lower teeth had been loose and tender. This was the first time in his life that the patient had ever felt anything like painful sensation in his teeth. One of these loose lower teeth, which projected beyond the line of the others was then extracted, and its extraction, unlike that of the upper teeth, is said to have been painful and attended with hemorrhage.

After the exfoliation of the third piece of necrosed bone the lesion of the gums promptly healed, and when examined again on the 29th of March the superior maxilla had, apart from its almost toothless condition, a healthy appearance.

But this pause was not destined to endure long. About a month ago the left middle incisor became loose and the patient drew it easily without discomfort. Its neighbor was still firm in its socket, but a dentist (under whose care the patient is), considering it more of an annoyance than of any benefit, extracted it. This operation was painful and followed by hemorrhage. About a week ago a piece of bone was dislodged from the site of these teeth.

At present the wound has not healed and is still discharging pus. The right wisdom-tooth alone remains, the last of what was but a few months ago a perfect set of upper teeth. Extending about an inch to the front of this tooth is an erosion of the gum exposing the bone and reaching sideways to the cheek. The tenderness of this part of the cheek disturbs the patient much while eating.

It may be well to emphasize the fact that the teeth, which were subjected to an examination, proved to be perfectly sound. It is also important to state that the sensibility of the jaws is altered. The eroded gums may be harshly handled without causing pain; prodding them with a hot needle has been practiced without evoking the corresponding sensation. The alteration of sensation obtains partially in the lower jaw also; this is not entirely devoid of sensibility to pain, as is evinced by the tenderness of some of the lower teeth. In other areas supplied by the fifth nerve the reduction of sensibility was not determined with certainty.

The patient states that he has been much treated with drugs, especially with iodide of potassium; but he has never had a sore mouth, nor has he ever been salivated by their use.

This case conforms with respect to the changes in the jaws and teeth on the whole to the manner in which these disturbances have taken place in the other cases reported in neurological literature. As far as I have been able to ascertain such dental phenomena have been observed in no other nervous disease than locomotor ataxia; and in this common disorder they are very uncommon. A recent German writer on the subject has been able to collect the records of only twenty-two cases. A survey of these shows that the teeth and jaws may become affected at any period of the malady; in some instances over twenty years had elapsed since the onset of the latter; in others fifteen, ten, seven and four years, respectively, while one individual is related to have lost all his upper teeth in the characteristic way over one year and a half prior to the first typical manifestations of tabes. The destructive process progresses with variable rapidity. Generally a few teeth are shed first;

this may be followed by some necrosis of the bone; then a pause may succeed, lasting in some instances for years before more teeth undergo the same fate. Or the denudation of the jaw may be completed in a very short time; thus in one instance two weeks sufficed to deprive it of all its teeth, and an English author tells of a patient who found that all the teeth of the superior maxilla fell out in the course of three days, without any pain or decay.

The upper jaw is far more susceptible to this affection than the lower. From all accounts accessible to me, which were sufficiently clear on this point, it appears that whenever the lower jaw was affected it became so subsequently to the seizure of the upper.

Sometimes the shedding of the teeth is unattended with necrosis of the bone. In two such cases the patients were affected also with the loss of their nails, and in another there was a tabetic perforating ulcer of the foot.

Unless it be shown that the painless loss of sound teeth and the painless necrosis of the jaw occur independently of locomotor ataxia, there can be no objection to asserting a direct connection between the dental and maxillary disease on the one hand and the nervous disorder on the other. The former must be considered as due to atrophic disturbance—that is a disturbance of nutrition resulting from defective innervation; and it has its analogies in other morbid osseous changes observed in locomotor ataxia, such as the spontaneous fractures and the joint troubles already alluded to. That there is defective innervation of the affected parts is evident from the diminution of their sensibility, which in some cases was far more advanced than it is as yet in the case I have just reported. Locomotor ataxia, although chiefly a disease of the spinal marrow, invades also other parts of the nervous system, and among these different portions of the fifth cranial nerve, in whose area of distribution are the jaws and teeth. This fact has not only been deduced from clinical observations, but post-mortem examinations have also shown the implication of the fifth nerve in this affection of the teeth and jaws in locomotor ataxia.

REPORTS OF SOCIETY MEETINGS.

MIDWINTER FAIR DENTAL CONGRESS.

DISCUSSION

Following the reading of the papers of Drs. Talbot and Chance, entitled, respectively, "Science in Dentistry," and "Dentistry in Its Relation to General Medicine," as published in full at pages 349 and 355, respectively, of this number.

Dr. S. E. Knowles.—Mr. President, ladies and gentlemen: There should be no conflict between medicine and dentistry. Since I have been in practice I have had occasion not only to modify my ideas in regard to this matter, but to almost completely change them. Twenty years ago dental colleges were very lax in their requirements. All of them required but two courses or a single course, with five years of practice in an office. Medicine, as you all know, has always been jealous of its reputation, and physicians have endeavored to live up to a standard, higher than has ever been attained by dentistry. I certainly do not blame physicians for not taking kindly to our efforts to affiliate with them. The fault is, I think, entirely on our side. We have sought recognition without obeying the requirements that is demanded of other specialists. If a man wishes to select a specialty, such as the eye, the ear, the throat, or other territory, if he is to be recognized as a physician, he must first graduate in medicine. Now, why should an exception be made in our case. I am sure I cannot understand. Formerly I hoped and believed that dentistry eventually would be recognized as a specialty of medicine, and become fully affiliated with it. But of late years I have altered my ideas completely. Dental schools have improved very much. They are demanding an entrance examination, which, to my mind, is a very important matter. They are demanding a three-years' graded course, and are giving lectures that certainly ought to qualify a man as fully to practice dentistry as a three-years' graded course will qualify a man to practice medicine. The course in dental colleges is, as you all know, largely practical. The course in medical colleges is almost entirely theoretical. When a man graduates from a medical college he really has got everything to learn, except a very, very small proportion—practically everything; while, if the student has passed through a dental college and applied himself properly, he is in a pretty fair condition to conduct his business successfully. Of course, he does not know it all. The class of people coming into dentistry to-day is a great improvement over the class that applied, even within my recollection. Young men do not expect to succeed unless they have proper qualifications, and the "office boy's dental college" is going out of existence. I am very happy to say it is. We will be recognized, not as physicians, but as practitioners of an art or a science, if you please, on a par with the practice of medicine. I think that we will have to give up the idea of becoming specialists in medicine. The mechanical department of the practice of dentistry, to my mind, would be a perpetual barrier. Now, a physician and surgeon does not make artificial limbs. That is turned over to the mechanic. He has to know when the various kinds of mechanical apparatus are formed and applied properly, but he does not manufacture it. I look forward to the time when the scientific part of our profession and that portion which now comes under the head of the operative department will be entirely divorced from the mechanical department. I think that we will never be recognized as on a par with physicians until that thing is done. It is difficult, I know, for any one in general practice to do a thing of this kind, but it has got to come. At present we are in a state of arrested development. There is a difference of opinion in our own ranks as to whether we ought to undertake to affiliate with medicine, or to stand upon our own base. The good work that is being done by special educational institutions, I think, points out the path of the divergence. Now, we cannot blame physicians for regarding us with complacent indifference. They don't know very much about the teeth. Some of them even don't know enough to send their patients to a qualified man, but undertake to treat diseases that they certainly are not as competent to manage as is the dentist. I think a physician ought to be taught enough in a medical college to realize that the dentist is master of his own territory.

There is a tendency, not only in professions, but in all departments of life to subdivide—to specialize. It holds to reason that if a man does one thing all the time, eventually he will become so proficient that he can do that one thing a great deal better than any one else, and he can do that particular thing much better than he can do anything else. Now, the class of people who are being attracted to dentistry has, I think, improved very much indeed. A professional man should be governed by an entirely different code of moral ethics than a man in general business. I had that impressed upon my mind a very short time ago in meeting a merchant, who was complaining that he had great difficulty in falsifying a certain class of merchandise that he was selling. He thought that, with a little bit more investigation and a little more ingenuity he would be able to make one thing appear so nearly like another that he would be able to sell it for a dearer article. I said to him: "In your business is that sort of thing considered right and proper?" and he answered, "Yes, it is." I said to him: "I have been brought up in a different way; in my profession I have been taught that a deception is entirely out of order." "Why," he said to me, "it is legitimate enough in this way: it is just exactly as good, and we can get a better price. My clerks, of course, know all about the thing. They are under orders to sell one thing for another." Well, now, I could not help thinking, suppose a professional man should be governed by similar principles; suppose he should deceive; suppose he should misrepresent; suppose he should say to a patient, for instance, it is necessary to do a certain thing, when it is not, for the purpose of aggrandizement, what would be the consequence? If he were a dentist, certainly there would be a way of disciplining him. If he were a physician and detected in anything of the kind, he would be expelled from his society. Should he be a lawyer, and found misrepresenting in a like way to a cliont, he would be disbarred from practice; but a merchant can do such a thing, according to the way that man represented it to me, and not lose caste. Now, we have to have a better class of men in dentistry. This entrance examination, to my mind, is a very important matter. A great many young men come in and are initiated into dentistry and manage to get along, but never can excel. They are not fitted for it at all; their preliminary education has not been what it should have been; and at the entrance is the place to admit as a promising candidate, or reject as an unpromising one.

Dr. Bonwill.—Mr. President, the paper that I promised to read you, "A New Era in Dental Practice," should have followed Dr. Talbot's paper on "Science in Dentistry." All appertaining to this subject should have been read and discussed together. If you will allow me, I will give my views, such as are not incorporated in my paper, on the "relation of medicine and dentistry." I do not see any relationship, any absolute relationship. We find three years' time is necessary in dentistry now, and it will be found after awhile that four will be needed. A dental education is of such importance that it requires for its curriculum the same length of time as that of the medical, but they are distinct one from the other. I was educated—I was born and brought up in medicine. My father was an old-school physician of the University of Pennsylvania. I studied medicine in Jefferson College. I never practiced medicine; I prefer the practice of dentistry. There is a certainty about the latter that there is not in the former. I feel, notwithstanding the love I have for medicine, my father and my early training, that I prefer to stand with dentistry as a distinct science. It comes nearer science than medicine, except surgery. We have the power to make ourselves just as distinguished, just as honored, just as useful in the world as the medical profession. I asked one of our physicians: "Is it necessary that dentists should take degrees in medicine?" Says he, "Bonwill, no. Take your own distinctive degree of D.D.S., M.D.S., or whatever you may choose to call it; stand by yourselves as dentists; make yourselves intelligent men on some other subject than dentistry; show that you are something more than manipulators; that you are men that can read and digest the journals as well as we can; put yourselves on a high level. You will have to, or we cannot recognize you. You have no need of an M.D." I have no objection to men taking the degree, as I did myself. I felt the need of a medical education. I wanted the knowledge. I might have gone into a manipulative school, into any scientific school, but it would not have given me that peculiar knowledge that I wanted about physiology, anatomy, or the science of medicine. But it was not to practice medicine that I wanted it.

Now, I believe in medicine; I believe more in dentistry. But we will have to do for ourselves. We will have to be honest above everything else. We will have to show that we want to rise. We will have to show it from our character, from the kind of operations we do, and our moral tone in the community. All of these things are necessary. If we do not no one will recognize us. On the other hand, medical men will be compelled to recognize us, as they were compelled to recognize surgeons, notwithstanding they were nothing but barbers at one time. It takes time. It is not time yet for us to be recognized as we will and must be.

This gentleman spoke of amalgam. It brings to mind an experience I had. I have met a good many homeopaths in my practice. The old school are not quite as bad about amalgam, but the homeopaths certainly are terrific; but I never stop for one instant, whether homeopaths or not. I say, "If you want to go, leave; if you want me, I will do as I please; I am going to use amalgam in this case." One case I had in Philadelphia, a man who has written as much upon therapeutics in relationship to homeopathy as almost any other man in the country; a celebrated German graduate. When he first came to me nothing but gold fillings would do. I said to him: "It is not right." It didn't make any difference. After awhile he went away to somebody else. Finally, he came back again. Says I: "I will not treat you unless you let me put amalgam fillings in every tooth in your mouth." He agreed to it. I want to show you the ignorance of that gentleman. He went home, and in eating, placed his spoon a little too far in his mouth and touched one of the amalgam fillings. There was a slight galvanic shock. The man came back to me the next day swearing against amalgam, and wanted every one of the fillings out. Says I, "Doctor, don't say one word, if you please. If I were to call up before you any boy from any of our schools and ask him if you were to put a spoon against an amalgam filling in your mouth what would be the effect? 'He would tell you without any hesitation that which resulted was nothing more than a little galvanic action from two dissimilar metals coming together. Had I put in gold? What would have been the result? If you had gone home and placed your spoon too far in your mouth, you would have had a greater galvanic shock." The man said no more to me about that.

Then, gentlemen, so far as our profession is concerned, its practice comes nearer science than anything that is practiced among the professions; I am proud of it. I am not proud of every man I meet; but I am very glad, as I said the other night, to see so many intelligent faces here. I am glad to see such a gathering, when too, you are so widely separated. We are glad to be connected with something that relieves so much pain.

Dr. Sullivan.—Mr. President, in discussing the papers that were read, the relation of dentistry to medicine, I would like to say, from my own observation and experience, that I see no reason why the dentist should not be recognized as thoroughly as the medical man, provided that he makes himself worthy of that recognition. The anatomy, physiology and chemistry that is taught in dental schools differs in no respect from that taught in medical schools. It is the same precisely. And if the average dentist feels that the medical profession frowns upon him he is not worthy of their recognition, simply for the reason to be called a dentist means much, to be called a dental surgeon means more, but to be called a specialist in medicine—that is, an exponent of the healing art—means infinitely more. Any dentist that will take the pains to fortify himself, to educate himself, as Dr. Knowles says, if he has had sufficient preliminary education, and is actuated by a desire to know all that there is to be learned from the study of the underlying principles of medicine, may do so. We are exponents simply of one branch of the healing art, the same as all specialists—of the eye, the ear, the throat, and so on; so that any one who feels that he is snubbed by his medical brethren simply has no one but himself to blame.

Dr. Chance.—Mr. President, I would like to say just one word in closing. I want to agree with my friend Dr. Talbot on some points. I don't think we differ as much perhaps as you may think we do. If we are up on the mountains, and looking down, we get one picture. If we are down in the valley looking from below upward, we get another. Truth is the same, from different standpoints. Now, there is a reason, a good, substantial reason why we are in a sense apart and distinct from the medical profession, and I want just for a moment to give you an illustration of that point. I want to call attention to the churches, so as to show the analogy. John Wesley was an Episcopalian. He was expelled from the Episcopal Church, and he said the world was his parish. We were ejected from the medical profession, or we would be members of the medical profession to-day. Now, another thought: Did you ever find a man that is practicing medicine asking to become a member of a dental organization? A man that is supposed to be practicing medicine, I don't care whether he is a specialist or a general practitioner, did he ever ask to come in and join a dental society? We have invited them to our dental organizations to give us papers on general subjects connected with medicine, but did you ever hear of a medical society inviting a dentist into their society? I am asking questions. I hope to be answered. Did they ever ask a dentist to come in and give them a talk on dental pathology? I understand that dentists are permitted—recognized as a fifth wheel to the wagon—in the dental and oral section of the American Medical Association, but are they co-members of that Congress?

Dr. Talbot.—Mr. President and gentlemen: It seems very necessary that I should say a few words in closing this subject. My paper, of course, was science in dentistry; not its relations to medicine. But the gentleman has brought out some points that certainly ought to be answered before the subject is passed. One is this (Dr. Sullivan has covered the subject pretty well): We should not try to puff up or raise our own profession by pulling down the medical profession. It has been the custom for the last twenty-five or thirty years to bring certain cases before a society to show their ignorance, and then try to bolster up our profession in doing so. I would like to ask the members present if the remarks made by the editor of the New York paper are not correct? Let us throw away our prejudice, and consider if the gentleman's remarks are not correct?

A Member.—No.

Dr. Talbot.—All right; it is a difference of opinion; that is all. Now, then, in regard to the last remark made by the gentleman, as to whether dentists are ever invited to discuss papers in medical societies, I will reply that that is the case in the East. For the last ten years what is called the dental profession and the medical profession have been coming nearer and nearer together all the time. There is the best of feeling existing between the better class of dentists in the East and the medical profession. I wish to say, as an illustration, that I have been invited in many cases to deliver an address before medical societies. Indeed, I am a member of the Chicago Academy of Medicine, which is made up of authors aud scientific men entirely. I was invited there. My seat admitted me to membership in the organization.

Dr. Chance.—Pardon me. Was it not by virtue of your degree, M.D., that you were invited?

Dr. Talbot.—Not at all. That cuts no figure whatever, because they would allow a blacksmith or a shoemaker to come in if he was a scientific man. That would cut no figure. There is not a man present or a lady in this room but if they were posted on any particular line sufficiently to bring them prominently before the society—I care not what it is—the Internation Medical Congress, the American Medical Association, the Academy of Medicine, the Academy of Sciences of Philadelphia—if they were posted on any one particular line they would be admitted to membership in those discussions. It depends upon us entirely, as Dr. Sullivan has said, what position he occupied. Now, then, let me illustrate a little bit what I mean by scientific dentistry in closing this subject. Suppose, gentlemen, you take the programme of any State society or national society for the last twenty-five years, show me what advance has been made on dental subjects? Are they not the same to-day that they were twenty years ago—the general run of papers? Has anything new been developed upon these subjects, when we take a serious view of the subject, without trying to puff ourselves up? Has there anything new been brought out in the last twenty-five years? If so, I would like to know what is. I would like to know if the papers that are written to-day and have been written in the last twenty years are any better than those that were written forty or fifty years ago? Take the old books and papers and see if there has been any advancement made in dentistry. I will admit that we are improving all the time, but it has been in a mechanical way. Dr. Kirk, I must say, has been an antagonist of mine for the last ten or fifteen years. He has had more or less controversy by letters and conversation in regard to this matter. He has come around to the point—if you will read his two or three last journals—that dentistry has made very little progress. I am glad to say that he has waked up to that point. Now, gentlemen, it is a serious matter. Do we stand as a scientific body? have we developed anything at all? I say no. I only bring this point out in an endeavor to build up the profession; that is all. Take the papers that have been read in this Congress, have the gentlemen given credit to the men who have made improvements? Has a single mention been made of a man who made improvements in the appliances of twenty-five or thirty years ago? Have not they stolen virtually—I only do it because I do it in other societies—have not they stolen the ideas that have been brought forward here as new papers? What is science? Is it stolen ideas, gentlemen? Not at all. It is giving credit to those who have done the work twenty-five or thirty years ago; giving credit to those that have done the work, trying to advance by hard and laborious effort for ten or fifteen years to bring out something new. That is science. Until we do that we cannot make any progress. How can we do it? In our dental colleges. Anything that we learn to advance the science must be done from a medical standpoint.

SAN FRANCISCO DENTAL CLUB.

THE Dental Club has inaugerated an idea which deserves to become a very popular one. Each member in his turn is to give a clinic, upon any subject he may choose to select. These clinics are to be held every Tuesday afternoon at 3 o'clock at the club rooms, 235 Post street. In the evening the members meet at the rooms and discuss the subject of the clinic.

The first clinic was given by Dr. William J. Younger, Tuesday afternoon, July 31st. Subject: "The Artistic Treatment of the Natural Teeth and the Regulation of the Teeth by Fine Silk Threads." The clinic was well appreciated, and the discussion abounded in complimentary terms of the Doctor's ability, it was said to be a complete revelation in the art of regulating teeth.

The clinic set for Tuesday, August 7th, was held on Monday afternoon, as the State Board of Dental Examiners had engaged the club rooms for Tuesday.

Dr. Russell H. Cool presented the clinic. Subject: "Immediate Extirpation of the Pulp, with the Use of Cocaine."

A good attendance in the evening gave a spirited discussion.

The next meeting will be held on Tuesday afternoon and evening, August 14th.

CALIFORNIA STATE BOARD OF DENTAL EXAMINERS.

THE California State Board of Dental Examiners held its regular annual session, for the examination of candidates for certificates to practice dentistry in the State of California, at the Dental Club, August 7th, 8th, 9th and 10th.

Fifteen candidates presented themselves for examination, of which the following were successful, and to whom certificates were issued by the Board:

F. O. Jacobs	Oakland, Cal.
Charles P. Everts	Oakland, Cal.
F. L. Savage	Livermore, Cal.
D. E. Roberts	Murphy's, Cal.
H. R. Sparrevohn	Los Angeles, Cal.
L. D. Swartwout	Los Angeles, Cal.
J. A. Cronkhite	Los Angeles, Cal.
A. F. Schiffman	Los Angeles, Cal.
R. W. Whomes	Los Angeles, Cal.
H. C. Hughawout	Los Angeles, Cal.
E. B. Howe	Riverside, Cal.
Robert L. Wait	Sacramento, Cal.
Geo. E. Miller	San Francisco, Cal.
Albert Meyer	San Francisco, Cal.

The following were granted certificates upon the indorsement of diplomas:

B. F. Pearce	San Francisco, Cal.
Philip H. Seibel	San Francisco, Cal.
V. J. McComb	Colton, Cal.
W. C. Smith	Pasadena, Cal.
Charles A. McGettigan	San Jose, Cal.

Duplicate certificates were issued to—

Charles T. Millikin	Sacramento, Cal.
J. H. Johnston	San Francisco, Cal.

A certificate by virtue of previous practice was issued to—

A. E. Macdonald	San Francisco, Cal.

The annual election resulted as follows: W. J. Younger, M.D., President; J. D. Hodgen, D.D.S., Secretary-Treasurer.

J. D. HODGEN, D.D.S., *Secretary.*

SELECTIONS.

THE NECESSITY OF EARLY SURGICAL INTFRFERENCE IN MALIGNANT GROWTHS.

BY R. A. M'LEAN, M.D., SAN FRANCISCO.

[Read before the American Medical Association.]

THE fact of malignancy having been established in a suspicious growth, the question of its complete removal demands the immediate attention of the surgeon. Regarded from a purely practical standpoint there can be no doubt of the superiority of extirpation by the knife over all other procedures, yet all candid surgeons will admit that many instances of recurrence have been met with after operations, which seemed at the time to be extensive enough to include all the diseased tissues. This tendency to recurrence after removal of malignant growths by operation, has influenced the laity, and not a small part of the profession, to delay radical treatment until the case has become hopeless.

It is the purpose of this paper briefly to point out the causes of failure of operative treatment, and to indicate, in a general way, the means by which a large proportion of cases of malignant disease may be permanently cured.

First in importance as a cause of failure of operative treatment in the majority of cases, is the large development of the growth when the surgeon is first consulted. In the carcinomata the surrounding tissues and neighboring lymphatics have already become deeply infiltrated; in the sarcomata, metastasis to distant parts has already taken place.

In not a few cases, ulceration has occurred; and to the exhausting effects of the discharges is added the presence of septicemia. Only disaster can result from interference in such cases; and should the patient survive an attempt at extirpation he will certainly succumb later to recurrence. The mistake is frequently made by the medical man first consulted at the comparatively early stage of the disease in not insisting upon radical treatment. It is usually the family physician who is first called upon to examine and prescribe for the suspicious growth. Upon him rests the grave responsibility in all such cases of deciding the question of probable malignancy. The temporizing policy usually pursued allows the disease to develop until operative treatment is inadmissible. The physician who is first consulted in a case of tumor or ulcer should promptly apply the usual tests to settle the question of malignancy. A broad consideration of the clinical features of the case will usually suffice to exclude the various non-malignant tumors and ulcers. In the majority of suspected cases the only element of doubt that need enter into consideration is the difficulty, in certain cases, of differentiating between malignancy, tuberculosis and syphilis. To reduce the question of doubt to still more narrow limits, it is only important to differentiate between malignancy and syphilis. A four weeks' course of mercury with arsenic and iodide of potassium will be a sufficient test. The question of tuberculosis is not important as governing the treatment, for extirpation is the most satisfactory method of dealing with all such tubercular manifestations as could cause suspicion of malignancy. A careful study of a suspected case for one month should be ample time to eliminate all doubt as to the proper course of treatment. The patient should be urged to undergo a radical operation without delay. If this course were followed, instead of the policy of delay, the surgeon could show statistics in which failure would be as uncommon as success has been heretofore. It is probable that cancer is increasing in frequency. It is to the family physician that the patient first goes for advice, and he should be alive to the importance of early recognition of malignancy in suspicious ulcerations and tumors. One cause of delay and loss of valuable time is the attempt to label the suspected growth with its pathologic title. Malignancy being probable, it should make no difference in treatment whether the case be one of scirrhus, or epithelial cancer, or one of the various forms of sarcoma. The surgeon has before him merely the question of extirpation of a growth which, if left to itself, will certainly destroy life.

In the early stage of malignant growths a relatively small portion only of the region or organ affected need be removed. The general health has not yet been affected and the patient rapidly recovers from a comparatively slight operation.

It should, therefore, be the first duty of the surgeon to insist upon early operation. Unfortunately, however, it is not until the growth has attained considerable proportions that the patient presents himself for operative treatment, and the surgeon is confronted with the task of removing the disease without sacrificing the life of the patient. It is probably the experience of most surgeons that cases of malignant disease do not apply for operation until the growth has involved a large part of the part or organ first attacked, and usually the neighboring lymphatics are extensively affected. In such cases it is unwise to attempt extirpation.

The following remarks are to be regarded as applying only to external malignant growths.

An early operation may be defined as one undertaken before any considerable extent of the part or organ originally attacked has been invaded. In carcinoma the lymphatics have not yet become affected, or only those in the immediate vicinity of the growth. The general health has not suffered. In sarcomata, no symptoms indicating metastasis have yet appeared.

It is in such cases that the surgeon may operate with a certainty of eradicating the disease. We now come to the most difficult part of the problem. How shall we decide in each case how far to carry the knife beyond the evidently diseased district? Instead of attempting to remove as little of the surrounding tissue as possible, it should be the rule to remove as much of the neighboring parts as can be done with safety, and with due regard for preservation of appearance and function. The direction and extent of the incisions will depend upon the course and proximity of the lymph vessels and glands, all of which should be removed with the overlying skin, together with all of the connective tissue in which they are embedded.

The surgeon will never have cause to regret extensive abscission, not only of the tissues evidently diseased, but also of such parts as lie in the path of extension.

The experienced touch, carefully and deliberately practiced about the vicinity of the growth, with due consideration of the direction of the lymph vessels leading from it to the nearest lymphatic glands. will enable the surgeon to plan his incisions so that they will fall altogether beyond the probable limits of the infiltration.

After the growth has been removed and the vessels secured, the surface of the wound and its vicinity should be systematically palpated in order to detect any outlying indurated tissue or diseased lymph gland. This must be done with the utmost thoroughness, and the touch can be materially assisted by the use of a powerful hand lens. Infiltrated lymph vessels will by this expedient be detected which would not be evident to the touch.

In dealing with malignancy occurring in the vicinity of the bones of the skull, as much of the entire thickness of the bone should be removed as has been affected by the erosion. This should also be done if the overlying periosteum be infiltrated.

In carcinoma of the tongue or lower lip, the inferior maxilla should be removed in part with the growth, if the extension of the disease has caused erosion of the bone itself, or infiltration of the periosteum.

In dealing with sarcoma of the extremities, amputation should be the invariable rule. In these cases the conservative surgeon will advise operation only in reçent examples, and before the occurrence of metastasis has placed the patient beyond the probability of cure. The amputation should be done through the continuity of the bone upon the proximal side of the articulation next above the growth. By this method alone can there be certainty of including all diseased tissue.

As an example of the advantages of a thorough removal of all neighboring tissue in carcinoma, I venture to present the following case:

Joel Simpson, 33 years of age, entered the City and County Hospital in January, 1883, with an extensive ulcerating epithelioma of the entire lower lip and the greater part of the right half of the upper lip and right cheek. The surrounding tissues were greatly thickened and infiltrated, and the lymph glands and both sides of the neck were enlarged. His general health was good. He stated that a small lump appeared first upon the right side of the lower lip about eight months before, caused, he thought, by smoking a clay pipe. The outer surface of the body of the inferior maxilla was eroded and the incisor teeth were loose. It was decided to extirpate the diseased mass including the body of the lower jaw.

Both external carotids and superior thyroids were first ligated. The growth was then circumscribed by an incision, beginning on the left side near the angle of the mouth, through the lower lip down the left side of the neck in an oblique direction to the larynx, where it was joined by a second incision beginning near the median line of the upper lip on the right side, and carried in a curved direction upward and outward through the right cheek and then downward and inward along the neck to the larynx.

The body of the lower jaw was then sawn through on each side near the angle, and the entire mass, including the submaxillary glands and enlarged lymph glands, were dissected from the inferior surface of the tongue, the pharynx and larynx. A few outlying enlarged glands were then removed. The surface of the wound seemed to be perfectly free from disease, but it was thought best to defer any attempt to close it by a plastic operation. In order to lessen the suppurating surface remaining, the edges of the mucous membrane and skin were brought together by sutures where the incisions passed through the lips and cheeks. The remaining wound was dressed with borated vaselin spread on lint, over which was applied an ample absorbent dressing.

The patient lost but little blood during the operation. In six weeks the wound had almost completely cicatrized. A plastic operation was then done to remedy the deformity, and difficulty in swallowing and speaking, caused by the protrusion of the tongue and absence of the lower lip and right side of the cheek. After dissecting off the cicatricial tissue from the edges of the cheeks and surface of the original wound, the tongue was freed from its adhesions anteriorly. A flap of skin and connective tissue was then lifted from the right side of the base of the neck and shoulder, turned upon its pedicle and approximated to the raw surface below the line of the mouth. The upper margin of the flap served the purpose of the lower lip, and its extremity was attached by sutures to the edge of the original incision in the left side of the neck.

In about four weeks the flap had united, when its pedicle was severed and adjusted to the freshened edges of the incision in the right side of the cheek and neck.

In conclusion, the following propositions may be offered:

1. All cases of suspected malignant growths should be treated surgically in the early stages of their development according to the rules ef procedure above outlined.

2. Excision should be done in all cases of malignant growths, however extensive, in which the general health has not been seriously impaired, or extensive lymphatic involvement or metastasis have not occurred.

3. Operation should be refused in cases of recurrent or primary malignancy, in which the general health is so much impaired as to render an extensive operation a serious risk to life; in all cases of extensive ulceration and infiltration of lymph vessels and glands; and in all cases of sarcoma in which there is a probability of metastasis having already occurred.—[The Journal of the American Medical Association.

OBITUARY.

DR. JOHN S. MOORE.

Died at Napa, Cal., August 5, 1894, in the sixty-second year of his age, Dr. John S. Moore, D.D.S.

Dr. Moore was a native of North Carolina, being born in Guilford county June 1, 1832. At the age of twelve he was sent to Shady Grove Academy, in the adjoining county of Rockingham, where he received his education. He taught school one year in North Carolina, two years in Virginia, and one year in Texas. On his return from Texas to North Carolina in 1855 he decided to adopt dentistry as his profession. He attended the Baltimore College of Dental Surgery, from which institution he graduated in 1860. The Doctor began practice in Madison, Rockingham county, North Carolina, and continued in that place until the spring of 1868, when he moved west and located at Pleasant Hill, Missouri, where he remained until 1877, when he came to California and located in Contra Costa county, stopping the first year in Danville, and then permanently making his home and place of business in Martinez, where he has since resided. In the latter place the Doctor enjoyed a large and lucrative practice; his exceptional skill as a practitioner and gentlemanly manners and courteous treatment attracting to him patients from all the surrounding counties.

He continued in the practice of dentistry until the afternoon of Friday, October 9, 1891, when he was suddenly stricken with paralysis while at the chair. His life was despaired of for a time, but he gradually recovered so as to be able to sit up and walk around a little, but never sufficiently to resume his practice. A few months ago he became worse and it was deemed advisable to remove him to Napa, where he could have the benefit of greater care and the attention of specialists in the treatment of nervous diseases. But the efforts of all were of no avail, and on Saturday the 5th inst. the grim reaper came and claimed him for his own.

The deceased was well known to the profession of the Coast as an exceptionally able operator, prosthetic dentist and scientific student. He was married in 1855, while in North Carolina, and leaves a widow, and three children—Dr. W. A. Moore, Dr. J. S. Moore Jr. and Mrs. J. H. Borland—and a legion of friends to mourn his loss.

CORRECTION.

IN the July DENTIST Dr. Leander Van Orden called attention to a chloride of zinc mouth-wash, and in some unaccountable way the printer mistook drachms for ounces, thus erroneously printing the formula. We humbly beg the Doctor's pardon for this very serious mistake, and take pleasure in correcting the same as found below:

℞ Zinci Chlor	drachms,	vij
Ol. Anisi	"	iss
Ol. Gaulther	"	iiss
Tr. Caryaph.	ounces,	iij
Tr. Vanillæ	"	iij
Tr. Card. Co	"	v
Spts. Vini Rect.	"	iij
Aq Distil.	"	ij
Saccharin.	grains,	v

M. Sig.: Mouth-wash; flavor to suit.

EDITORIAL.

DENTAL HYGIENE.

"WHAT shall I use to cleanse my teeth?" Seldom is it that a patient is released from a long and tedious operation, or finishes a series of engagements with the dentist that the above or a similar question is not propounded.

"Now that my teeth are in order, how shall I assist in keeping them so?"

Hygiene is a science; practical hygiene is an art; practical dental hygiene, therefore, is the science and art of preserving and conserving the teeth, the oral cavity and its contiguous tissues.

That the teeth and contiguous parts cannot be conserved by the dentist without the aid of the patient, and that they cannot be preserved by their owner without the assistance of the dentist is a conceded fact. If, therefore, it is important that the dentist should be liberally educated, that he may be thoroughly capable of doing his part, it is equally important that he should be able to intelligently instruct his patients in the care of those natural organs he is so often called upon to extract, replace or conserve.

Much is constantly being written for the edification of the practitioner, his education is being added to constantly, all sorts of devices are being invented to save time, labor, pain—and teeth; tons of new and good material are being thrown upon the market, but dental hygiene, as far as the patient is concerned, has been wofully neglected. Occasionally some thrifty advertiser conceives the plan of compiling a pamphlet upon the subject and distributes it among his patients and those whom he hopes to have for such, bearing his name as the author and his office address.

Much of the time dentists themselves differ so diametrically in their opinions—individual or borrowed—that the intelligent patient is led to doubt the benefits of following the counsel. The preservation of many teeth is probably due to this fact, inasmuch as much of the advice given is ruinous to the healthful mouth.

It may not be entirely out of place to refer to a late editorial in the New York *Medical Record*, even though the same has been repeatedly called attention to in other articles. It is there truthfully stated: " . . The dentist is content to fill the teeth, then disburse a bottle of his own special mixture of chalk, orris and wintergreen, and tell his patient to brush the teeth *vis die*. The ordinary tooth-brushing is entirely ineffective in preventing caries or disinfecting the mouth. For this purpose a genuinely antiseptic wash is needed, and this should be used for a considerable time. Just what this wash or powder should be, and just how long it should be used, is one of the things the dentist should find out. Let the American dentist devise a way of making the teeth and gums aseptic and preventing caries. He will then be greater than if he invented a new filling or novel drill, or transplanted a whole jawful of teeth."

It is true that the average practitioner is little given to instructing his patient in hygiene; and much of that that is tendered is of such a general, sweeping character that its good is lost. No two patients are suffering from the same conditions acted upon by the same influences and predispositions; the individual patient, therefore, must be treated, and not symptoms or diseases. That which may be of incalculable benefit to one may work an injury to another. Many of us claim to be able to wisely discriminate the indications for the use of plastic work or gold operations, yet perhaps we are in the habit of prescribing the same "dental powder" to every patient indiscriminately. Is that science?

Is it of more importance to be able to diagnose a condition which calls for a gutta-percha stopping instead of gold; to be able to restore that which has been lost in tooth-structure with the very best substitute than to be informed of prophylaxis; to be able to prevent the loss of structure in the first place by the proper use of the proper agents at the proper time?

A recent article in the daily press gave valuable information to the layman upon the anatomy and physiology of the dental organs, and, after much thereon deserving of real merit, the author closed his dissertation by saying it is well to have the teeth examined semi-annually by the dentist and to brush them frequently.

The lack of stress both by position and brevity laid upon the closing hint, as was remarked, broke the whole force of the article, and it would have been immeasurably better had the author neglected altogether this most important of all admonitions than to have made it seem as unimportant as he did by this brief reference.

But such is a fair sample of the average dentist's instruction to his patients. He will dwell upon the advantages or disadvantages of this or that particular material, bridge, crown or denture, but to the question, "How shall I care for my teeth?" he recommends a bottle of his chalk or soap solution, and another visit at the expiration of six or eight months.

Much too often these dentifrices recommended by the unthinking dentist contain elements of composition that are particularly fruitful in engendering just those conditions which he should seek to eradicate. Many powders are freighted with ingredients that are absolutely insoluble in the secretion of the salivary glands. These, left in the mouth and about the teeth, insinuate themselves beneath the free margin of the gums; these accumulating irritate and inflame the soft tissues, and materially injure the harder ones.

Much of the so-called tooth paste is made up of soap and honeys, also containing insoluble portions. The soap is many times strongly alkaline, and a constant and dangerous irritant to the gums. The honey, undergoing fermentation, is productive of just those injurious effects that sweets and candies inflict. Mouth washes are perhaps redolent with soap solution in order to produce the lather which is designed to give the user the impression of cleanliness.

It is an undeniable fact that such powders, pastes and washes are formulated to the end that they may cleanse the teeth by frictional use of the brush only, at the expense of tooth structure. They may all contain one—sometimes more—of the volatile oils intended for flavoring to suit the purchaser, and also to act as a deodorizer of a fetid breath, caused by pyorrhœa and suppurating gums, which have their origin in the use of such irritating "swab" mixtures, recommended by ignorant practitioners.

In the most of these dentifrices, prepared alike for all patients (with the exception of the flavor, which seems to be the most important matter), no thought of antisepsis is given.

No ingredient is added to make it a genuinely antiseptic or disinfecting remedy as it should be; nor is age, condition or any other predisposition taken into consideration by the designer of such a panacea.

Let us have more light and science upon such an important matter by those who are best able to give it. More attention to antisepsis, better advice to patients, and a little "run on" prophylaxis now for a change.

"Intellectual California."

Mr. Charles Freeman Johnson, the official reporter of the Midwinter Fair Congresses, is preparing to publish a work entitled "Intellectual California: A History of the Intellectual Events in California contemporaneous with the period of the Midwinter Exposition." It will be in three volumes—"History of the Midwinter Fair," "Midwinter Fair Congresses" and "Convention Reports."

This is an endeavor on the part of the publisher to preserve for future reference the official reports of all the different congresses and conventions held in California during that time.

The report of the Dental Congress will appear in volume III, together with beautiful half-tone portraits of officers and the group of delegates and officers. All desiring this handsome and valuable publication should send an order immediately to Charles Freeman Johnson, publisher, room 3, fifth floor, Mills Building, San Francisco. Price, $3; no money is required until the books are delivered (about October 1st). You positively cannot secure them unless you order now.

DR. WM. J. YOUNGER honored the members of the State Board of Dental Examiners with one of his delightful dinners at the Bohemian Club, Friday evening, August 11th.

THE thirteenth annual session of the College of Dentistry, University of California, will begin Monday, September 3d.

DR. BONWILL has gone to Alaska; so we learn from Dr. Chance of Portland.

KALEIDOSCOPIC.

The Treatment of Typhoid Fever.

[Read before the Chicago Medical Society, March 5, 1894, by Elmer Lee, A.M., M.D., Chicago.]

Recognition of the value of cleanliness represents the most practical discovery in treatment during the present generation, and at the same time it constitutes one of the really great discoveries in the history of Medicine. The application of the principles of cleanliness more nearly meets the requirements of a real advance in curative medicine, than all the other propositions known to the profession for the cure of disease.

The symptoms of typhoid fever are too well known by all to need particular mention; the question of burning interest is what to do to be saved. The disease is produced by drinking contaminated water, and its seat of development is situated in the intestinal canal. There is a poison there which, if it could be removed before it had become absorbed into the blood, life, and even health would be spared. Allowed to remain, the poison is drawn into the circulation, and very soon the whole body feels the depressing effect. Even at this time, if those remaining poisonous juices and germs which are contained in the bowels were either neutralized by suitable remedies, or washed entirely away by a stream of flowing water, the disease would be checked, the patient spared, and health restored.

Without waiting for development of the symptoms of typhoid fever the very first proposition is to make the patient surgically clean, which means the free and abundant use of water internally first, and externally afterwards. The bowels are drenched and cleansed by a copious douche of hot soapy water, made to pass into and out of the lower bowel, until the contents are cleared away and the returning water comes back as clear as before it entered. The relief to the sick person by following such ablution is a delight to the physician and of greatest comfort to the patient. It seems so reasonable, they will say, and in practice it is just as good as they say. Fears were formerly entertained by me, as they are to-day by some of my contemporaries, that something would be bursted by running a large volume of water into the bowels of persons sick with typhoid fever. No harm has ever been done, and neither is it likely to be so caused. Several hundred cases have been so deluged by me with large quantities of water, and in no instance has the result failed to be beneficial. The fear of doing harm may be entirely and forever dismissed. That which is not well understood by any one, always seems inconvenient, or troublesome to perform. But a little practice makes easy the methods which a little while before appeared unpleasant, even hard.

The temperature of the water used for cleansing and washing the bowels, should always depend upon the temperature of the body. If there is high fever the water is more agreeable and useful to the patient when it is cool, viz.: 75 degrees F.; but if the patient is chilly, or has a low temperature, the water should be at blood heat, nearly 100 degrees F. During the first week of illness, the irrigation of the bowels should take place in the morning and again in the evening of each day. After this, one douche of water should be given each day until convalescence. The co-operation of the patient is readily accorded. The treatment takes hold of his reason, which lends both hope and help to the management of the case.

Bathing the body is performed at regular intervals and by such a system as may be convenient and suitable to the individual. The bathtub may be used when the patient is strong enough to be assisted to it, where otherwise, sponging with cold water is very refreshing, and useful to maintain strength and lower the heat of the body.

The most effective and most lasting influence is secured by wrapping the patient in a wet sheet. Two blankets are spread on the bed, covered with a sheet wet with cold water. The patient is wrapped in the sheet, and then folded quickly and completely in the blankets. The time during which the sick one may remain in the wet pack is from one-half to one hour, or even longer if he is comfortable. Bathing opens the pores of the skin, and through them the system discharges a part of the hurtful waste of the body. This bathing should be continued, several times daily during the disease and during convalescence.

The internal treatment is uncomplicated, safe and useful. The basis of it is cold water, and always plenty of it to drink. Water cools the body and assists to cleanse it of the poison which makes it sick. The elimination is carried on through the intestinal canal, through the kidneys, through the lungs, and by the skin. Let the sick have water, it can do no harm in any case; water only does good. What cruelty it was in fever cases to keep water from them, and what suffering it caused. A half tablespoonful of hydrozone* is added to each glass of water. It is the best and most simple remedy that can be given that is likely to benefit in helping to cure typhoid fever. Continued for a few days, it is then laid aside for a few days and glycozone substituted in its place, both as a relief to the patient and for the beneficial effect of the remedy itself. And so on in this way the two remedies are alternated, which is found by me to be the best arrangement for administering these valuable antiseptics. The preparation, glycozone, is chemically pure, redistilled glycerine in which ozone or concentrated oxygen, has been incorporated, and can be taken with as much freedom in safety as pure glycerine. The glycozone may be taken in doses of half a tablespoonful to a glass of water as often as water is taken during the day. When it is desired to allay nervousness and induce sleep at night, sulphate of codeine is used, in doses from one-half to one grain, by the mouth, or one-quarter to one-half grain by the hypodermic method. This remedy tranquilizes the nervous system and induces sleep, and should be administered at night.

The typhoid fever patient receives as food, whatever is simple, at regular intervals of four hours. Milk, simple, natural milk, is nourishment of the highest importance. One egg every day, or every other day, is alternated with a small teacup of fresh pressed juice from broiled steak or mutton. The egg is pleasant to take and more nutritious, when whipped till it is light and then stirred with a small glass of milk. For a simple and nourishing artificial food, malted milk is always good.

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* Hydrozone now takes the place of peroxide of hydrogen, the strength is double, the dose one half. See addenda.

The juices of fruits are delicious to the typhoid fever patient, and are not to be dismissed on the supposition that they are injurious. It is always interesting to observe that, when the fever is broken, and convalescence is beginning, that water in copious draughts is no longer easy for the patient to take. When the usual glass of water is handed back half drained, it is an encouraging sign of beginning restoration. For wholesome drinking, fresh lake water which has passed through a Pasteur porcelain filter is entirely reliable.

The simplicity of the foregoing plan meets every requirement, and saves nearly every case, unless there is some complication. It is my belief that doing more than this is doing less, and less than this which is so simple, is not enough. The profession agrees that no kind of drug treatment is useful or curative in typhoid fever, indeed, one of these days, in my opinion, the statement will be considered applicable to other, if not all, cases of diseases of the bowels.

The plan as proposed by me and practiced during a period of five years, consists, in review, of the following systematic management in typhoid fever:

Water used internally as a douche for free irrigation of the bowels, either simple or made soapy with pure liquid soap. Water as a drink, and as a remedy taken copiously and frequently, especially during the stage of fever. .Water is indispensable, and should be given as often as is desirable and agreeable to the circumstances of the case. Frequent application of cool water to the surface of the body during the entire illness.

Remedies: Hydrozone and glycozone, for the antiseptic effect of the oxygen which is set free in the stomach and intestines. But to be of real value, these remedies are to be taken in considerable quantity largely diluted with water, else, in my opinion, they are of little use. The capacity of the bowels is so great that a little of anything cannot spread over enough of this enormous area to effect it beneficially. Cleanliness is the principle governing the use of hydrozone and glycozone.

For a remedy that sooths and brings on sleep at night sulphate of codeine is better than chloral, besides it is the safest and best.

For food, anything that is simple and in liquid form; milk is always the best; milk and whipped eggs; pressed juice from broiled meat. The juice from fresh, ripe fruit. The nutrition taken should be at regular intervals (four hours), that sufficient time may be allowed for digestion.

Stimulants and drugs are injurious without exception, and better results are secured without their use. Typhoid fever, generally transmitted through the drinking water, is a preventable disease. Typhoid fever affects all classes, but if food and water were always pure, no class or age need contract typhoid fever. Cleanliness everywhere and always is the means at hand which makes it possible to escape typhoid fever and other diseases of the bowels. Internal cleanliness as well as external is a reasonable proposition of hope for the cure of the unhappy multitude of sick and discouraged humanity.

Addenda.—The use of peroxide of hydrogen as an internal remedy has been widely opposed by some of my patients, owing to the disagreeable metallic taste. This objection was partly obviated by the use of large dilution with water, but still not to my entire satisfaction.

Since reading the foregoing paper, a new antiseptic remedy called 'Hydrozone' has been received and examined already sufficiently, to promise relief from the objections against peroxide of hydrogen for internal use. Hydrozone has now been substituted by me instead of peroxide of hydrogen. First, on account of its greater bactericide power, as it requires but half the quantity of the hydrozone to obtain the same result, and secondly, the taste of this remedy is not disagreeable to the patient.—[Chicago Medical Recorder.

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ORIGINAL COMMUNICATIONS.

COMPOSITE AND COMBINATION FILLINGS.

BY J. FOSTER FLAGG, D.D.S., PHILADELPHIA.

[Read before the Midwinter Fair Dental Congress.]

FELLOW-MEMBERS OF THE MIDWINTER DENTAL CONGRESS: It is with peculiarly mingled feelings of pleasure and regret that I am once more seated at my desk for the purpose of holding converse with my friends of our dearly loved Pacific. It is always a pleasure to me whenever any opportunity presents which takes me in thought back to my old "stamping ground" west of the Sierras. It is a regret, and a very great one, that I cannot have the pleasure of being with you, seeing you all face to face, again hearing your familiar voices and giving you the hearty cow-boy handshake, strengthened by the love we all have for dentistry; but next to this is the satisfaction of talking with you, every now and then, upon some subject which we recognize as possessing mutual interest and large importance.

Among the various subjects that have been largely discussed and that have evoked wide difference of opinion there is probably no other which has so positively demonstrated its value, *clinically*, as has the utilization and combination of two or more materials in the filling of certain cavities of decay in teeth.

Aside from the fact that pulp complications, as associated with deep decay, have gradually asserted their claims to con-

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NOTE.—The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in this country.

sideration, and have imperatively demanded that lead, paper, quill and all the other materials of the long list of "protectors," "non-conductors" and "intermediates" be utilized as important factors in the work of complete and comfortable tooth salvation, we have *long* been unable to deny that the tendency toward *recurrence of decay* was very frequently but illy combated when any *one* material was relied upon for this purpose.

It is now more than fifty years since a *relativity* in ability to prevent recurrence of decay was noted as pertaining to the then recognized materials for filling teeth.

Even at that early date (during the '30's) it had been observed that in what were then called the "soft teeth," tin-foil was making a better record than was the gold-foil, even though this latter was worked with very creditable skill; and more than this, that the "silver paste" of Taveau, known to the operators of those days as the "Royal Mineral Succedaneum" of the Crawcours, had already made its antagonistic good and bad record of the dreadful blackening of both fillings and teeth, but, per contra, the marvelous preservation of hundreds of teeth which were at that time classed as "worthless."

It was late in the '30's and early in the '40's that the advanced men of that period, noticing the deficiency in certain cases of the tooth-saving attribute of gold; the deficiency, in certain positions, of the attribute of resistance to attrition as pertaining to tin; and the seriously objectionable attribute of disfiguring tooth discoloration, as pertaining to that which is now universally known as amalgam, began to cautiously consider the possible advantage which might accrue from a *combination* of materials in one cavity of decay.

It was noticed that, while deep cuppings were formed in the articulating faces of tin-foil fillings, the integrity of the fillings was satisfactorily maintained around the walls of the cavities, and it was but a slight, yet very important step in advance, when the making of divers deep indentations in the remaining tin, by means of sharp-pointed instruments and the insertion of gold-foil in the shape of "rope," "tacks" and "pellets," and the final consolidation of these by single-pointed pluggers, with hand pressure, eventuated in a resistant covering to a tooth-saving material, giving to dentistry the first "combination fillings" of which we have any knowledge.

Like every other advantageous process which has ever been offered, this one was decried by most of the so-called "leading" men. Not only were its advantages denied, but its direfully detrimental results were warningly enunciated, and it was even asserted that "unskillful and unscrupulous dentists fill with tin covered with gold, thereby causing galvanic action, pulpitis, death of the pulp, abscess and *loss of the tooth*"!

As my father was one of those who indulged in this bi-metallic practice, and as he had ample opportunity for showing me plenty of cases which utterly refuted such unfounded and unwarranted assertions, I was early taught to lean kindly and gently, but firmly and solidly toward the side of dental heresy.

For nearly twenty years this method of combining tin and gold was occasionally resorted to, but with the re-introduction of amalgam at the hands of such gentlemen as Hunter and Townsend, the idea of *one material* was re-established, as the regenerated, "purified" amalgam was supposed to be that remarkable tooth-saver, minus its objectionable attributes of tooth discoloration and self-darkening.

The blow which operative dentistry received as these claims were proven unfounded was severe in the extreme, but the advent at that time of the Sorel cement, known as oxychloride of zinc, put almost immediately a new face upon the work of tooth salvation.

At first this material was hailed as a boon indeed, but less than a year was required to prove the frequently prompt solution of its fillings by the fluids of the mouth. Here it was that the old experience of the wornout tin-foil fillings was utilized by those who were cognizant of it, and both gold and amalgam fillings were introduced in cavities from which the oxychloride of zinc was partially washed out.

Then it was promptly seen that the remaining zinc prevented the amalgam from discoloring the teeth, and later on, as the years went by, it was demonstrated that this same zinc was a most notable preventive to recurrence of decay when associated with coverings of gold.

Thus it was that "lining" became an accepted factor in operative work, and, as there was no *combining* of either the gold or the amalgam with the oxychloride of zinc, a filling resulted which was merely *composed* of two separate and distinct materials, usually separately introduced, and frequently after the lapse of several days and after the thorough hardening of the "lining." So "composite" fillings came to be made and introduced, the *first* decidedly satisfactory method of preeminent usefulness in the work of beautifully and most permanently saving the frail soft teeth.

Having early in this work suggested that linings of zinc-chloride should be introduced into cavities of decay in very soft teeth, and that these should be *promptly covered* with fillings of gold or amalgam, I instituted a most extended line of work in this direction which I continued to enlarge during a period of nearly twenty years. Of this work I can now say that it has proven the most comfortable, the most satisfactory, the most beautiful and the most tooth-saving of any previously devised.

I have hundreds of fillings of this "composite" kind which have now done service for from ten to twenty years in cavities in which gold fillings (introduced by the best operators of those days) had repeatedly failed in from three to five years, so that I can safely say from the clinical standpoint that composite fillings of oxychloride of zinc linings and gold, amalgam or gutta-percha covering, have the best known record for the permanently beautiful saving of frail, soft teeth.

During the later years of the '70's a material was introduced which is now properly known as zinc-phosphate. This material is frequently and indeed quite generally spoken of as oxyphosphate; but the difference between the two is so decided, and the extended use of the former and the very limited use of the latter is so definite that I would premise remarks in regard to them by stating that true zinc-phosphate is composed of a powder which is the oxide of zinc treated by nitric acid, and thus rendered so entirely different from ordinary oxide of zinc in its utilization by dentistry as to make it very unjust to give it the name of oxyphosphate; while, on the contrary, the ordinary oxide of zinc made into mass by the menstruum of zinc-phosphate is so white a material as that, although it is relatively very deficient in density and strength, it is yet eminently desirable as a whitening lining for discolored front teeth.

Zinc-phosphate is one of the two materials utilized by dentistry upon which in its legitimate using there is no discount.

The legitimate uses of zinc-phosphate are the lining of cavities; the filling of large part of large cavities (with pulps protected in vital teeth); the strengthening of frail walls; the maintenance of color; the improvement of color in discolored teeth; the attachment of crowns and bridge-work; the securing of irregularity appliances and the making of "combination fillings" and "combination guards" (when indicated) in the treatment of periodontitis; and for these various purposes it would seem that a more acceptable material could neither be suggested nor desired.

As a filling material it is utterly unreliable, as at times it lasts in a most remarkable manner, while at other times it fails most signally and most summarily, and no one can prognose in the least degree as to its behavior in any individual instance.

This, then, is the material of the present, in connection with which I would speak mainly of combination filling.

I desire, however, to refer briefly to the fillings of tin and gold, which are purely composite, and are made either by the folding together in various ways of the two foils, or, again, are made by the introduction of the tin-foil at the cervical edge of the cavity, followed by the introduction of the gold as the much larger portion of the filling.

Of the former method, it has never seemed to come in my lines to experiment with it; I can, therefore, say nothing in regard to it, but the latter utilization has been so constantly indulged in during the past twenty-five or thirty years that I have had abundant proof of its value; it is true that personally I have not done any of such work for a great many years, but I have directed and supervised its application, certainly in thousands of cases, and the results have been decidedly gratifying.

I would also refer to the "composite" and "combined" use of amalgam and gold in all its varied appliance—as guard, hard and soft; as repairer in fractures of tooth, and in loss of portions of filling material from missing of weld; as components in bimetallic fillings, for the obtunding of general sensitivity of teeth, or for the benefit of generally undesirable systemic conditions, for in all these varied directions the judicious use of the two metals in one cavity has made a record in the alleviation of trouble which is well worthy the recognition of all dental practitioners.

And now, in conclusion, I desire especially to speak to you of that combination work of zinc-phosphate and amalgam which has given us *eleven years* of record upon which to base the opinion that it is the most reliable advance which has ever been made in the direction of the satisfactory saving of the most hopeless as well as the most hopeful of teeth below medium in structure.

It was not long after the introduction of zinc-phosphate into this country before its value as an adjunct to the work of dentistry was well recognized, though, as was oxychloride, it was promptly denied position as a filling material proper.

Familiarity with the various attributes of plastics at once secured for this one that high position which was due to its putty-like consistency, its marked adhesion to cavity walls, its non-irritating characteristic, its prompt hardening, its non-shrinkage and its reasonable insolubility, all of which were at once utilized in the furtherance of that work which up to this time had been done through the agency of the irritating, slow-setting, shrinking oxychloride.

It was soon suspected of the very objectionable attribute of being dangerous to pulps, and the corroborative evidence of this seemed so conclusive that the belief in this power for pulp devitalization has been very largely retained even to this time.

For myself, while I do not believe positively in the existence of this danger, I yet think it so probable that I *never* place it in any position where its presence could by any possibility endanger that organ.

Almost simultaneously with the introduction of zinc-phosphate came that other material upon the legitimate use of which there is also no discount. This is "temporary stopping," and in this low-heat, easily manipulated, non-shrinking and impervious plastic, the facile placing of an "intermediate" was rendered possible through the instrumentality of which all danger to the pulp was completely overcome.

Various suggestions, such as mixing amalgam filings with the powder of zinc-phosphate, then making this mixture into mass and introducing it thus as a filling; also the making of soft amalgam mass, then making the mix of zinc-phosphate, and spatulating these two together and introducing thus as a filling; also the introduction of zinc-phosphate into the cavity and rubbing in alloy filings on the surface, etc., every one of which suggestions were palpably unscientific, as no *proper* utilization of the various attributes of the two materials as best subservient to the purposes desired was accomplished.

So far as I have seen this work in its perfect adaptation to the great requirements of exhaustive tooth-saving under the most trying circumstances, it has been done by first placing upon the usual glass slab the required quantity of fluid and powder, then making a soft mix of amalgam (contour, 2 parts; facing, 1 part) holding this in the palm of the hand by three fingers, then making the zinc-phosphate mix and introducing it into the cavity, pressing it against the walls, then taking a portion of the amalgam mass it is placed in the center of the zinc-phosphate, and with it the zinc-phosphate is gently worked out to thin edges at the edges of the cavity; more amalgam is then added and the combined materials are worked out to feather edges in such wise as that the zinc-phosphate forms an *adherent* perfect lining, and the amalgam a *combined* perfect covering.

It will then be seen that every valuable attribute of the zinc-phosphate is perfectly utilized, and every possible short-coming is effectually guarded against; while, on the other hand, every objectionable attribute of the amalgam is guarded against and every valuable attribute is utilized.

It is now *eleven* years since the experimental work of the four years previous gave to us the belief that a safe acceptance of the method was permissible, and the thousands of fillings which have been introduced during the past fifteen years, many of which have done most extraordinary service under most disadvantageous auspices, warrant me in regarding this work of "combination filling" as one of the most reliable, beautiful and satisfactory of all the various devices for saving teeth; one well worthy your earnest consideration, and that one which, of all others, will most heartily commend itself to your confidence in just proportion as you become expert in its precisely accurate manipulation.

CHLOROFORM ANÆSTHESIA.

BY A. H. FYNN, D.D.S., DENVER, COL.

[Read before the Midwinter Fair Dental Congress.]

IT has been well said that the tripod upon which modern surgery to-day rests is supported by three legs—anesthetization, vaccination and ligation. The greatest of these is anesthetization. It is not only the greatest of the three legs of the tripod, but, from a humanitarian standpoint, the grandest discovery ever known.

What is anesthesia? Dr. Wm. H. Porter gives this definition: "When the oxygen in the blood has been reduced until the natural peripheral irritation of the centripetal nerves, and the direct stimulation of the great centers from the heart produced through the oxidation processes in the body *is partially suspended* and thus all the nerve functions, except the respiratory and cardiac are abolished, the patient is thrown into a quiescent and dead-like state commonly called anesthesia."

There are various agents used for the purpose of producing insensibility during surgical operations, ranging from various local anesthetics to that one recommended by Robespierre during the French Revolution, the guillotine, and the greatest of these in my estimation is chloroform.

I wish to start with this premise, that where everything is favorable for its administration chloroform, in the hands of a careful operator, is absolutely safe. Where the conditions are not favorable, where its administration is contra-indicated, no anesthetic is safe. This being true it follows that fatal results are not dependent on the agent, but on the physical condition of the unfortunate patient, or mistakes arising from ignorance or carelessness in its administration.

The vulnerable point is in our possession or lack of knowledge in determining who can or cannot stand the administration of the anesthetic.

It is not necessary here to go into details in describing the manner of administering chloroform; you are all familiar with it; suffice it to say the patient should be as nearly as possible in recumbent position, though I do not think this is by any means absolutely necessary, excepting where patient is anæmic or suffering from weakened heart action.

In these cases every precaution is necessary. The apparatus should be as simple as possible; an ordinary paper cone with free opening in smaller end, in which is a small sponge or napkin to be saturated with the chloroform is perhaps as good as anything. The inhalations at first must be very much diluted with atmospheric air. A strength exceeding one per cent merges on dangerous ground. This should be gradually increased until it reaches a strength of four or five per cent, where complete anesthesia will soon be produced. I wish to reiterate that the first inhalations must be very dilute. Here is one of the principal sources of danger. The chloroform vapor through the lungs enters the blood; this, through the pulmonary veins, enters directly the heart, from the heart into the aorta, and the first branch given off is the coronary which supplies the muscles of the heart itself. Now if this vapor be poured in an undiluted stream upon the muscular tissues of this organ it results in direct paralysis which, of course, unless combated, means death. This paralysis can also be produced by depriving the heart of its natural stimulus the blood. For this reason great care is necessary in administering it to anæmic patients. They should always be placed in a horizontal position. All construction that in any way impeded the flow of blood through the venous system should be removed. This is particularly necessary about the waist, neck and lower extremities. The heart's action should be most carefully watched, and at the first sign of danger the patient must be restored to consciousness. Danger in these cases is always present.

Complete anesthesia is determined by total relaxation of the muscular system or lack of sensibility in the conjunctiva. If an anesthetic is given at all, complete insensibility should be produced. Otherwise, besides being extremely unsatisfactory to patients and their friends, there is danger of the combined shock of the operation and anesthetic.

It should be given fearlessly, but not too hurriedly. We must bear in mind that it is a change from a physiological to a pathological condition. That it is produced by shutting out the atmospheric air and deoxygenating the blood and tissues, and can only be produced slowly by giving the physiological economy reasonable time to adapt itself to the new condition.

Dangerous symptoms in chloroform anesthesia are almost universally manifested in the heart's action. This may arise from direct paralysis, as explained before, or in the anesthetization of those nerve centers upon which the action of a normal heart is dependent. This is especially true in regard to the pneumogastric nerve which controls almost entirely the cardiac and respiratory movements.

The deep origin of the pneumogastric is in the medulla. Now if the medulla from lack of oxygen in the blood, and through this the pneumogastric fails to receive its accustomed stimulation, the result is complete stoppage of the heart, and, if carried further, of the lungs also, and for the time being the patient is dead. This is reaching the so-called "dead spot," and prompt action is necessary to save the patient's life.

One of the most effective methods of accomplishing this is the complete inversion of the patient. This is best accomplished with head on floor and a foot on each shoulder of operator. By this the blood, by attraction of gravitation, is forced to the brain, the medulla and pneumogastric are stimulated, the heart commences action and in a little time the patient recovers. Artificial respiration is also beneficial and the injection from one-sixth to one-fourth of a grain of morphine is an excellent arterial stimulant. Brandy or whisky for the same reason can be used, and if unable to be swallowed may be injected. After the patient commences to breathe, nitrite of amyl can be inhaled and is a good stimulant, though personally I do not like it on account of depressing effect afterwards.

In trying to resuscitate a patient under these conditions it is necessary to continually bear in mind that the blood has been deoxygenated, and until it is reoxygenated the patient will not recover. Anything tending to produce this is beneficial.

I believe the cases in which chloroform should not be administered, if the operation is of importance, are very exceptional. An examination, however, is absolutely necessary, so that one may know from what source to expect danger, and then use every precaution to combat it. It has been proven beyond doubt that the shock and fear of a capital operation is more dangerous, especially in cases of heart disease, than the administration of chloroform.

Another condition that has recently received a great deal of attention in these cases is the action of the kidneys as manifested in the urine. I can do no better than quote again from Dr. Porter. He says: "The urine should always be carefully examined, not simply for albumen, glucose and casts, but more particularly as to its quantity, density, acidity and the comparative amount of urea to the uric acid and other by-products of proteid oxidation. If the urea is markedly decreased in quantity or the uric acid is perceptibly increased in quantity, alone or with the presence of other by-products of incomplete proteid oxidation, such as lactic acid and oxalic acid, bile salts and pigments, it indicates imperfect oxidation, impaired nutritive activity and decreased vitality." It shows clearly that the resisting power for an extra strain upon the system is very much below the normal standard.

Under such conditions, if it is in any manner possible, the administration of an anesthetic and performance of the operation should be postponed.

For the same reason special care is necessary in administering it to those patients suffering from chronic diseases of long standing, as tuberculosis, syphilis or any of the various kidney diseases. Also, in very old people on account of lowered vitality and small recuperative powers, every precaution should be exercised.

Compared with other anesthetics the superiority of chloroform lies in the small quantity required to produce insensibility, eighteen minims actually inhaled, the average dose; less liability to nausea if given on empty stomach, this is almost nil. Much pleasanter to patients, absolute certainty of results, less struggling and muscular excitement, patient always under control; particularly happy in its effect on little children, no other anesthetic approaches it in this respect.

To sum up, when chloroform is administered it should be given freely, but always carefully; always pure and never mixed with other anaesthetics; only after careful examination of patient to know from what source to anticipate danger. With these precautions satisfaction is almost assured both to patient and operator.

ABSCESS OF THE INCISIVE FOSSA.

BY RUSSELL H. COOL, D.D.S., OAKLAND.

[Read before the San Francisco Dental Association.]

AT the outset I must ask the indulgence of my audience for the brevity of this paper and its evident lack of thorough preparation. My excuse is very late notification of my place on the programme. Like the lady who, after seven months of married life found herself the mother of a wee mite of humanity weighing one and one-half pounds, apologized for the smallness of her progeny by saying she "did the best she could in the time she had," I make a similar excuse for this hastily conceived literary child of mine.

The science of dentistry is in many respects "a science of small things," and in studying it we do well to keep in mind the scriptural injunction "Despise not the day of small things," because frequently it happens that the failure to understand thoroughly some of these "small things" leads the practitioner into great error and much embarrassment.

The *incisive or myrtiform fossa*, though small in itself and to the casual observer apparently of little importance, is so situated that an inflammatory condition existing there is as serious even as abscesses of the antrum itself. There seems to be less vital resistance in the surrounding osseous structures than in other portions of the superior maxilla and its processes. Situated just below the anterior nasal spine, above the incisive teeth and over their roots affording origin to the depressor *alae nasi*. Its close relation with the palate process and the anterior palatine canal, which transmits the anterior palatine vessels, makes it an important subject of study to the stomatologist.

It is somewhat common to find fistulous openings in the posterior portion of the palate near the median line, and experience shows that the majority of these openings communicate with sinuses having their origin at the incisive fossa.

The surgeon, in treating an osseous abscess, endeavors to give thorough vent to the entire cavity and its ramifications. Nature, where such a vent is secured, will assist and do all in her power to restore the parts to a healthy condition. An opening made through the soft tissues, just above the affected incisor, will penetrate the incisive fossa and enable the operator to thoroughly cleanse the abscess cavity and the fistulous tracts.

The diagnosis of such cases is frequently very difficult, owing to the fact that commonly there is no sensation of soreness in the affected tooth, especially if the root has been filled for some time.

Another complication to be met with is necrosis as a result of chronic abscess of incisive fossa, which is of no infrequent occurrence, and in such cases pus is seen to exude from the floor of the naries, or through the palate, or along the articulation of the palate process with its fellow to the posterior portion of the mouth, where it escapes less thorough examination.

In the treatment of a great number of these cases I have found little difficulty in restoring the diseased parts to a healthy condition and saving the teeth, even where it was necessary to amputate a portion of the apex of the root; and here I will state that it is absolutely necessary, in order to produce this result, to remove thoroughly all calcic deposit from the roots.

The treatment consists in the use of the dental engine in removing the necrosed osseous tissue and the employment of warm aseptic washes, such as carbolic preparations, solutions of bichloride of mercury, peroxide of hydrogen and pyrozone (neither of the latter should be used at the commencement of the treatment). Such treatment should be followed by the use of aromatic sulphuric acid and stimulating washes, the surgeon bearing in mind always the necessity of keeping the artificial opening distended by the use of proper tents, so that granulations may proceed from the interior.

In making this artificial opening I have been using synthetic carbolic acid as a local anesthetic on account of its coagulating qualities. Recently I have experimented with tri-chloracetic acid and have secured good results, even more satisfactory, possibly, than those attained by the use of the other acid or cocaine. In these cases the surgeon should exercise the most extreme care in the sterilization of all instruments used.

I have thus attempted to suggest, in a general way, the methods of diagnosing, reaching and treating the many complications arising from inflammatory conditions occurring in this little territory. At some future time I hope that I may have the opportunity of broadening these suggestions by the citation and explanation of specific cases arising in practice, or by the even more satisfactory agency of a clinic.

THE IMMEDIATE ROOT-FILLING.

BY R. EDWARD CAMPBELL, WOODLAND, CAL.

[Read before the Midwinter Fair Dental Congress.]

MUCH has been written upon this subject, both scientifically and otherwise. I shall call your attention to the matter simply and plainly, I hope, as I find it in actual practice, citing a few cases treated and methods used.

I am a firm believer in the immediate root-filling, and practice it exclusively. On July 20, 1888, I treated and filled my first tooth in that manner. I will describe the case briefly, giving course of treatment, also process of manipulating roots, up to the present time.

Mr. H. applied for relief from acute abscessing, first superior left bicuspid; face badly swollen; tooth very sore. Removed a large anti-proximal filling and opened canal. There was a free discharge of pus and speedy relief. Used nothing in tooth at that sitting, but instructed patient to keep canal open, if possible. Did not see him again for three weeks, at which time all trace of soreness and looseness had disappeared. Applying the rubber-dam (which is indispensable) burred out canal freely and proceeded to treat with permanganate of potash, placing a crystal in canal and adding a drop of water. Repeated these applications, alternating with *hot* air, until all trace of odor had disappeared. Flushed with bichloride of mercury, dried thoroughly. Moistened with 1-2-3 (carbolic acid, oils of cinnamon and gaultheria), after which applied hot air freely; closed foramen with chlorapercha, and filled root with oxychloride of zinc mixed into thick paste with wood creosote. (I use this exclusively, although harder to manipulate than gutta-percha. To my mind it is much superior as a root-filling.)

My first being a perfect success, I have treated all since that time, immediately, with comparatively few failures. Have used peroxide of hydrogen more than any one remedy, but vary the treatment as judgment dictates. I invariably use the root-drill, but never run through end of root unless there is severe pain, when patient applies for relief which cannot be given with certainty in any other manner, advisedly. A man who has not a steady nerve, good eyesight, perfect control and use of mouth-mirror, and, above all, olfactory organs trained for the sweet smells of this world, had better be a little careful about the indiscriminate practice of immediate root-filling.

I treat with all remedies in much the same manner as given above, depending, however, upon the case in hand. Never use an oil with an odor, until all traces of fetor, so familiar to us all, has been removed, which can be done in all cases—it matters not how bad—in less than one hour's time. A tooth deprived of its fetid odor is ready for a filling. I stand with Dr. Brown upon the firm ground, that nature is the only healer. Remove the cause and nature will heal the effect.

I shall now call your attention to aristol. This may be new to many of you as a root-dressing and filling. At the present time I fail to find it mentioned in dental literature. With me it has become a household remedy; and if I am cranky on one thing more than another, it is in the use of aristol. In plastic surgery it stands to-day as one of the best, if not *the best* of all antiseptic dressings. Using street parlance, iodoform is not "in it" with aristol, except in smell, which alone should banish it from all practice, for I think we have remedies much superior, less the smell. I have used it in all instances since the first trial, have closed many roots, as an experiment, that I would not have treated formerly for some days, and with perfect success. My first use of aristol came about thus: Mrs. A. applied for relief from accute abscessing, left inferior first bicuspid. I opened; as usual in all such cases pus discharged through tooth; relief soon followed. I was to treat the tooth two weeks later, but when the time arrived she was in Oakland. While there, some four weeks after tne tooth had been opened first, the root became clogged, which renewed the old abscess. Patient at once applied for relief, but was told by several dentists that the tooth could not be saved. In despair she declined to have it out. Luckily, under the forceps, it broke even with the gums and she would not have the root removed. The crushing of the crown broke up the abscess which discharged through the root on the following day, and gave relief. Upon her return to Woodland she called for advice in regard to the root. As the dam could not be applied for an immediate treatment and filling, I advised, as did my Oakland brethren, extraction, as the only sure proof against further trouble, but the patient would not consent. I tried some of the old ways of treatment, but with no hope of success. After three weeks of such treatment (enough to cause the loss of an ordinary tooth) I insisted upon removing the root, but she was firmer than at first in her determination not to have it out. Having assisted a prominent physician in a number of surgical operations, noting his free use of aristol and the happy results following, I decided to experiment, and so informed my patient. The root was sore and discharged daily a watery, purulent pus (there was a very large foramen). With napkin adjusted I proceeded as follows: First dried with biblous paper and hot air; one application peroxide, one of bichloride of mercury; very hot air after each. Now, with the hot-air blower (pretty hot) blew hot fumes and powder of aristol through foramen, filling apical space and root full of the hot powder, packed it in solid and sealed with cement. The whole operation took about fifteen minutes. Twenty-four hours later the soreness had all disappeared. (I now use Blair's vaporizer). To-day, ten months since, that root has been supporting a Logan crown and doing as good service as any of its neighbors. Aristol did the work. I have treated and filled roots in three molars and two bicuspids (all in a most purulent condition) at one sitting, and with perfect success.

I now use aristol exclusively for closing apical foramen. I simply pack the powder—which adheres to walls of tooth while using vaporizer—tight into end of root (if it passes through it matters not, but is the better for it) and fill balance with oxychloride and creosote, as stated above.

The aristol prevents the oxychloride from being forced through end of root (which would cause trouble) and the creosote in the paste, when packed upon the aristol, combines with same, forming a sticky, rather hard, insoluble filling. I came to these conclusions by the happy results obtained by its use, and testing in small glass tubes.

In summing up, I would say: Dead teeth, with me, have lost their former terrors. Looking over my record carefully, I note the following: Out of 440 cases treated, after first methods cited, 430 were successful. Seventy-four cases using aristol—all a perfect success. I believe I could have saved more than double that number had patients yielded to my judgment and treatment, instead of the forceps. So many think a "tooth out" the only proof against further trouble; count the loss of a useful member as nothing, and no amount of argument will swerve them in their opinion and desire for a heroic, immediate extraction.

In closing I wish to call your attention to a practical piece of bridge-work on exhibition, which I hope you will inspect and criticise. I claim its invention, and that it is the best-looking, strongest, cleanest, least liable to breakage, and easiest repaired. A tooth, if broken, can be replaced with a new one in a few minutes, without removal of bridge. I use plain, ordinary vulcanite teeth, and no solder and heat upon them. It would be difficult to give *modus operandi* of construction except by demonstration.

IDEAL PORCELAIN CROWN.

BY F. W. BLISS, D.D.S., SANTA CRUZ, CAL.

[Read before the Midwinter Fair Dental Congress.]

DOUBTLESS there is no branch of dentistry in which such marked improvement has been made during the last decade as in artificial crowns. There are a great variety of them—from the old porcelain crown, mounted on seasoned hickory, down to the present gold crown, so much used and very much admired by some of our patients, who are anxious to wear a golden crown, tho' not set in jewels. A short time ago I purchased a Downey furnace for making porcelain crowns and bridge-work, and, after making several crowns from the description given in his pamphlet, the thought came to me that an improvement could be made in the Downey crown, and the following is a brief description of it:

Prepare the root by grinding it down nearly to the gum margin, using a corundum wheel that will leave a perfectly smooth surface. Bevel the anterior edge to an angle of 45 degrees, reaching nearly to the pulp canal. Parallel the sides with Evans' root-trimmers, then fit accurately a platinum band made of No. 32 U. S. guage to the root already prepared, trimming the upper part of the band to correspond to the contour of the gum, allowing it to reach a uniform distance of one line under the gingival margin. Now remove the band from the root and solder a piece of platinum on lower end of band two-thirds of its circumference, leaving the anteriors one-third unsoldered. Return the cap just described to the root and adjust the loose anterior portion of the cap to the beveled edge. Then again remove the cap and solder the anterior portion in position. Select a plane plate tooth, color to match, and grind the upper portion to fit under the anterior part of the cap, also counter-sink the front upper edge of the tooth so that it will project anteriorly beyond the bottom of the cap. A piece of iridioplatinum wire, either round or triangular, is fitted to the root-canal and a small hole is made through the bottom of the cap on a line with the canal much smaller than the wire; this wire is now driven through the hole in the bottom of the cap into the root-canal; the tooth already prepared is placed into position and the pins twisted around the post, which is also in position. Now remove the whole, as above described, taking care to keep all the parts in position, and place it in the furnace without investment and solder with pure gold. After soldering place the crown on the root to see if it fits properly. If everything is satisfactory, back up with Downey's porcelain body, put into the furnace and fuse. In the first baking the body will shrink somewhat, more can be added, covering the anterior portion of the band and fuse again; the porcelain will fuse to the platinum as well as to the tooth and make a strong and natural piece of work. If, by miscalculation, we do not get the proper shade of body, it can be ground off with a corundum wheel and other shades added until the desired color is obtained, and we will have an ideal crown.

In conclusion, I wish to say inasmuch as this crown is an improvement on the Downey crown, and resembles it in appearance, I will point out the difference. The Downey crown depends on the porcelain largely for its strength. In this crown the metal part is all soldered together with pure gold, making it very strong and wholly independent of the porcelain for *its* strength.

REPORTS OF SOCIETY MEETINGS.

MIDWINTER FAIR DENTAL CONGRESS.

DISCUSSION

Following the reading of Dr. J. Foster Flagg's paper, entitled "Composite and Combination Fillings," and Dr. A. H. Fynn's paper, entitled, "Chloroform Anesthesia," as published in full on pages 397 and 404, respectively, of this number.

The President.—Dr. Van Orden, will you be kind enough to open this discussion ?

Dr. L. Van Orden.—It was understood with the Chairman of the Programme Committee that I was not to open this discussion; but I should feel myself ungrateful for opportunities I had some eleven years ago at the Philadelphia College if I did not respond, and in some measure express my satisfaction at the paper of Dr. Flagg. As I first heard of the paper I presumed that the old question as to the merits of the gold filling on the one side, and the plastic on the other, was to come up. I am gratified to find that that is not the case this evening. Upon that subject I have for some time considered that it would be my privilege, perhaps my duty, to express in some definite form some consideration of the relative merits of those materials in some manner that I feel has not yet been done. In relation to combination fillings, I believe that in a sense a new era has come forward in the treatment of carious cavities, which will ultimately prove to be increasingly comfortable to the patient and satisfactory to the operator. I don't quite understand why Prof. Flagg has dwelt so slightly upon the combination of amalgam and gold. In my judgment, and I believe in that of many older operators and conservative men, who during the greater part of their lives have been extreme gold operators, a base of a moderate amount of amalgam at the cervical margin in large and difficult cavities is desirable.

As to the combination between tin and gold, I am not so familiar. There has been some little doubt cast upon the value of this, as to whether the tin will disintegrate when placed below the gold. Others who will follow in the discussion, Mr. President, I trust will enlighten us on that subject. One of the most interesting suggestions is that of the lining of the cavity with oxyphosphate, or, as Prof. Flagg prefers to say, zinc-phosphate. I don't know whether all of our best cements are made as he states—treating with nitric acid the oxide of zinc. I know that in one, the Gilbert cement, I have placed a good deal of confidence, partly because the maker urges that it is calcined for one hundred hours. It might be that less time would be sufficient. But there is no question that he has succeeded in vitrifying his material in that time. I have found his preparation very satisfactory. Dr. Gilbert is an old pupil of the Philadelphia Dental College, and probably knows the desirable points of a cement filling.

I have not yet made use of the combination of cement and amalgam, but I do not think I will lose much time in trying it. The point made by the Professor in relation to putting an intermediate stopping or lining between the oxyphosphate and nearly exposed pulp, I think, is one that should be spoken of and some elaboration made in regard to it. The most interesting point that I have noticed within the last year, and really within a very short time, is that of a cement anchorage for gold filling in very shallow sensitive cavities. In a majority of cases it would not be expected that the entire anchorage would depend upon the cement, but it does add strength, I believe, to the anchorage of gold fillings in shallow sensitive cavities. The best preparation that seems to be obtainable for that purpose is the mat gold, which is placed over the freshly mixed cement and pressed to place with smooth points, such as burnishers, or broad foot instruments with shallow serrations. I have found the burnishers more satisfactory. Thermal change has been reduced by this method.

There is another combination filling which I have not heard mentioned, and one which occurred to me when a circular was sent around some time ago by the American Dental Association, furnishing topics to local dental associations. One of the queries was: what material would be selected as a temporary stopping for a minimum period of three years? The suggestion of a temporary stopping which one could promise to last three years was somewhat novel. I must confess, being a little bit puzzled, for we have always pointed out as a matter of caution that we should not warrant the temporary filling over three or six months, and thereby insure the return of the patient at frequent intervals for inspection. For such a case ordinarily we would use gutta-percha at the cervical margin in combination with cement. But we have never guaranteed that in any two cases there would be a like result as to the wearing of the cement. It occurred to me to substitute amalgam for cement over the gutta-percha; and since that time, in a very large, compound mesial cavity of an upper molar, extending below the gingival margin, near a pulp which I did not wish to devitalize, I filled partly with gutta-percha, and over that with amalgam. Now, it will be readily seen that should at any moment this tooth become refractory and require devitalization, a good fissure bur could be passed over the amalgam, dividing it in two, and the amalgam could be picked out and a warm instrument used on the gutta-percha. You will agree that that would be a humane proposition. It would seem that if the patient were going to China or the North Pole, there being a physician along, or someone who would be competent to remove the filling, that would possibly be one of the means of meeting the necessity.

Mr. Chairman, in closing the discussion, for my own part, I cannot resist the desire to say, first of all, that I hope, on some future occasion, to be able to say something as to gold as a filling material, speaking as to what I understand to be its merits. I hope to give a little broader view of the relative merits of plastics and gold than has yet been given, at least to my understanding. I further would like to say, Mr. Chairman and members, that I believe the time will come when we will understand that the work of Prof. Flagg has been a life-work under peculiar circumstances—under circumstances which do not exist in California; in other words, I believe that the clientage of a dentist in Philadelphia is entirely distinct from that of California. I have known and worked for some patients who had been in Prof. Flagg's and his assistant's hands since childhood. I am satisfied that I never had a case come in my own practice, as a young man, that I could treat in the same way, except he had come from the hands of Prof. Flagg. In other words, I would probably lose the patient before many years, however conscientiously or faithfully I might have performed my services. But I desire to say, if there are any here who are inclined to question Prof. Flagg's position, his merit as an operator, or as a student of a profession most beloved on his part, that I believe the time will come when Prof. Flagg's position will be one of the most enviable in the records of dentistry.

Dr. Chance.—For the benefit of my Nevada brethren, I want to say that I am a bimetallist. There is a great deal in this matter, and a few thoughts have occurred to me not directly on the subject of the paper, but upon the principles upon which it is written. I notice that as men grow older they are more inclined to become bimetallists, being monometallists when they are younger. They like bright work and pretty filling. As they grow older they become more conservative. A twenty-dollar piece is better than the same weight in silver. We admit that. It will bring more money. But it is questionable whether when placed in a cavity of a tooth it always produces as good results.

Now, these combination fillings: What do we want as dentists? We want to restore the usefulness of the organ. Some of my patients, if they are going to travel, will ask sometimes, "what dentist shall I go to?" I don't always know where they are going, and cannot always tell them what dentist they should patronize. But I say: when you find a dentist who recommends an amalgam filling as better than gold, permit him to do as his judgment dictates. For two reasons: First, if he is a poor gold operator, he will do better with an amalgam filling than with a gold one, and it will render better service. Second, if he is a gold operator and thinks the tooth should be filled with amalgam, that is the best for the tooth. Now, there is many a good plastic operator that is not a good gold manipulator. But, if half the slovenly work was done with gold that is done by dentists with amalgam, there would be a great many more failures than there are in gold. It is not so much the material. That is the means to an end only. If you have not operative brains behind the material, I pity the patient. I presume you are all acquainted with the origin of cohesive foil. But let me tell you about it. They used to send an order to New York for a book of gold foil. Well, to save postage, which was quite an item then, the friend remitting it took the gold from the book and when it arrived, to the operator's horror and disgust, the gold had stuck together. Such is the origin of cohesive foil. He sent for another book and the officious friend told to mail the book just as it came from the dealer. Meantime the dentist wondered why that gold had cohered. Reasoning if it will stick together in the mail, why not in the tooth? He tried it. The cavity was on the anti-proximal surface of an upper six-year molar of the right side, a large one. As I say, he attempted it and it proved a success.

Some of you find while putting in gold fillings that they leak at the margin oftentimes. Now, I am satisfied, one of the best things in the world to do is to pack the space with amalgam. It makes one of the best combinations you can put into a tooth. There is a peculiar union which takes place between these metals under those circumstances that I cannot exactly account for. The amalgam is close to the margin, and it does not seem to penetrate the gold to any extent, nor does it turn very black. If you will polish the surface it is all right.

Now we come to the lining of the tooth with oxyphosphate, or zinc phosphate. In the instance of little children, what is the use of malleting gold into a six-year molar. Do you wonder that the victims sometimes say they don't know what you are doing? I don't. There is no such thing as *permanent* filling. I am always in favor of using operative brains with all kinds of filling.

Dr. Barber.—There is one point in the Professor's paper that was barely touched upon. I should like to have some gentleman who has had experience in that particular line give us the benefit of his information. That is in reference to the combination of tin and gold; not the tin first and the gold afterwards, but the tin and the gold together. I have done some of that sort of work. I would like to know the experience of others in the profession who have had something of that sort to do. Let me say in my hands it has been highly satisfactory for about five years. We experiment upon our own little people sometimes because we have them under our care and can see them often. I have three boys, and I believe they all have fillings of that material in their teeth. I look at them very frequently and they are lasting well. Only in one case has there any oxydization taken place. I examined it very closely and to my surprise I found it was crystallized, not laminated. The change in form had taken place during the three or four years it had been inserted in the tooth.

I have used the material in attaching gold fillings where decay had taken place at the cervical margin and have found it very satisfactory in such places. I speak only of my own experience, because I have not seen any of any other operator. A year or more ago I had the pleasure of talking with Dr. O. of Chicago (he having made me a visit), and his experience was similar to mine. He told of one patient in whose mouth he had inserted forty fillings of that material, and all of them had done the work admirably. He claimed for them a less liability of shock from heat or cold than there would be in the case of gold, and a compatability with dental tissues that is possessed by nothing except pure tin, and the advantage gained over pure tin is that of resistance to mastication, which tin does not possess.

Dr. Burkhart.—I want to say one word only as to the facts Dr. Barber has stated. I saw the filling he opened, and the nature of the crystallization. It looked to me exactly like an instrument does that is freshly broken. The crystallization showed plainly, except the crystal in this filling was much larger—coarser.

Dr. Parsons.—Mr. President, I very seldom combine two different metals in a tooth, but very frequently combine metals with the phosphates. I do a great deal of lining and build on with gold or amalgam. I make a foundation, whether of gold or amalgam, while the cement is still soft, then allow it to harden and finish afterwards. I very seldom (not at all of late) combine amalgam with gold, or tin with gold.

Dr. McCoy.—About eleven, perhaps twelve years ago, the combination of tin and gold was a fad of mine. At first it was filling teeth with tin and finishing with gold; then as Dr. Flagg has described in the paper. I met a gentleman the first day of the convention, on the street here in San Francisco, that had six or seven teeth filled in that way eleven years ago and they are perfectly good to-day. I have not done very much of it in the past four or five years, and could hardly tell you why I have not, but we all take these spells. I really believe that tin at the cervical margin, finished off with gold, makes a most excellent filling. I have a great many examples in our end of the State at the present time. In regard to the combination that Dr. Barber spoke of, about five or six years ago I did a great deal of that kind of work, and will say that my experience is coincident with his. I believe it makes one of the very best fillings for children's teeth. It is better than amalgam, infinitely better, and can be inserted almost as readily. I expect to continue that practice. I never have joined amalgam to the phosphates as Dr. Flagg describes, but I think I shall try it when I go home.

Dr. Hart.—In connection with Dr. Flagg's paper I wish to explain a manner in which I have used amalgam and gold. I have no doubt other members of the profession have used it in like manner. But I have found it to be a very great success, inasmuch as I have been able to do, I think, almost as good—yes, to do a better operation than if the tooth had been entirely filled with gold. I speak with reference to the use of a matrix in inserting an amalgam filling, say in a bicuspid and molar where the cavities come together, use strips of German silver held in position by little pieces of orange wood and insert the amalgam filling. I fill it up, say about an eighth of an inch, in the bottom of these two teeth, near the gum, then remove the matrix and let the patient go, and at another sitting fill with gold. You can get your retention in the amalgam at the second filling for the fastening of your gold, and you are sure of two things. First, that you have a proper separation, keeping the cavities from crowding back together. Then, at the return of the patient, of filling with the gold and keeping the entire proximal space, which is so essential. I can also be sure that the cavity at the cervical margin is properly filled, for I can see it and polish it. I always polish this cervical margin of the amalgam until I can see that everything is in perfect condition. Then make the retaining groove and go ahead and fill the cavity with gold.

Dr. Carr.—Combination fillings have been a hobby of mine for many years. I am glad the subject has come up to-night. There is one point that has not been touched upon. I would like to say a word in regard to large proximal fillings in bicuspids and molars, especially where there are frail walls. The gentleman who has just spoken said he filled about one-third of the cavity with amalgam and built up the remainder with gold; this makes a very good filling. But I don't think he went far enough. I used to be a gold crank, but I presume I am a crank now on combination. In these kind of cavities I do not think the tooth will stand the amount of malleting necessary to insert the two-thirds of gold. Such teeth are frail, and I think more amalgam should be inserted, as it is a better filling for the cervical margin than gold. Amalgam where it gives way at all, it has been my experience at least, gives way on the grinding surface. It seems to me it is not the shrinkage of the amalgam that causes the reappearance of the decay so much as that the filling becomes hard and brittle, and the force of mastication breaks off the little particles of the filling around the margin, on the grinding surface, leaving it ragged. I believe the best operation in such cases is to fill the cavity entirely with amalgam, let it rest there until it becomes thoroughly set and hardened, then with a fissure drill to go around between the filling and the tooth on the grinding surface and fill with gold. I believe it makes a better filling and one that will last longer than any other in that kind of cavity.

Dr. Bonwill.—I dislike to take up so much of your time. There are so many men here who ought to talk, so many younger men. I would like to know what their experiences are, though I have no objection to telling you what my experience is in regard to this matter as I think it a very vital one. If there is anything that comes home to us more than any other part of our practice, it is that which we are engaged to-night in discussing. I did not hear the paper of Prof. Flagg, nor did I read it. But I know every word that he spoke or that he wrote. Long ago when I heard him upon the subject, compatibility, no gold; those were the cardinal principles. I took issue with him at once, so far as compatibility is concerned. How far is any man fitted to judge of what he is doing and what others are doing? How few men are entitled to an opinion? How few men ought we follow? These are questions to be asked. There are plenty of men who are talking about all subjects, and each man judging that he is just exactly right.

So far as my own individual experience is concerned I have been a great experimenter—or rather, I should say, I have been experimenting in many ways. As to compatibility, in this matter I am completely at variance with Prof. Flagg. I say "adaptability." I have used gold, tin, amalgam—except one kind; I never used copper amalgam. For I must say that copper amalgam is one of the most damnable materials I have ever known. Nothing shows our ignorance, our incompetence, so much as that one thing. It will save a tooth, so far as preventing the decay is concerned. But there are hundreds of other things that will do the same thing. Gold will save a tooth perfectly, according to the manner in which it is put in and the manner in which the tooth is prepared. Tin will do the same thing. We can make a contour of gold or of tin. We can make it of gold and amalgam, most any amalgam. I can do it, and I can save a tooth with it. I don't care whether it has got copper in it or not. I can save it with putty, so far as that is concerned, if I have prepared my cavity properly; and if it is caries I want to offset; but it is not that alone. When we come to compatibility, if it is compatibility of material, a false crown of gold certainly ought to be as compatible as anything else. Take a porcelain crown and put it in contact, let it hold its relation with the natural tooth; if it is compatibility that does it I am sure decay ought not to take place on that natural tooth, for that is one thing that has the appearance of as complete compatibility as possible. You may put a piece of porcelain in a tooth, and unless there are certain contingencies found there, it will decay around it. There are certain principles that it is necessary to follow. Everybody sees the surface. While I believe in gold, it does not prevent me from saying one thing, that there are other things better in certain relations, in conditions that are existing in various mouths. I can fill a tooth with gold, pack it against the walls, but if I have allowed any portion of that tooth surface, a point between the parietal walls, to come in contact just at the joint in the opposite tooth, I can't save that tooth. It goes after that one joint, that one spot in spite of everything. If I put the rubber-dam on and excavate a tooth with the expectation of getting at the decay entirely at the surface, then I will make a failure almost every time. It cannot be done. That is, if you go as far as you ought in a majority of these cases. If it does not go up very high you can save it, whether you have the dam on or not. I find the greatest trouble about the surfaces, that unless I go beyond the point where decay takes place, unless I go beyond it and have no fear whatever of my being able to put in the filling simply because I go up that high, it is not a success. If I go beyond it I can save that tooth at the surface just as I will at any other point. But I ought not to discuss this question to-night, because in the paper that I am to read, "A New Era in Dental Practice," it brings up and involves this whole thing. I don't want anything better than gold. I can save a tooth with gold at the surface if I have prepared the cavity rightly. I use gold. I use amalgam. Tin I do not. It will save a tooth, but in the condition of the teeth of the present day, such as come to us, nothing but contour and the most perfect contour work will ever secure to you the result that you are looking for. I don't care what may be the material. You may put in a perfect tin filling, it may be perfectly contoured, but it won't stand.

If I have to use anything else than gold, then I will take the next best thing. I consider that amalgam. And it is owing a great deal to the manner in which the amalgam is put in, as well as to the manner in which the cavity is prepared. You may have heard of the manner in which I put in amalgam under bibulous paper. It has been published. While I wish to fill every tooth with gold, almost every tooth with gold, because it can be done if treated properly, I find cases where it is hardly indicated.

A Member.—One gentleman asked of the conditions existing in gold and tin when they are rolled together, not when there was a combination of tin at the base of gold above. I would like to say I have had some experience in that. Some years ago I had some correspondence with Dr. Miller of Portland and some of my friends, and we came to the conclusion that tin united with gold in this manner produced a chemical combination. We found that the fillings became very much harder and more crystalline in structure. We came to the conclusion there was a chemical combination. I have since that time put in a number of fillings for the purpose of examining them, taking them out after a year or two, and have had a number sent to me by Dr. Miller. We have had them examined by a metallurgist and chemist, and the conclusion was that it was not a chemical combination of gold and tin, but simply a mechanical union; and this mechanical union produced a crystalline structure in both metals; not only a crystalline structure of the tin, but of the gold. In the mouth, subjected to acids for a considerable length of time, the tin gradually was dissolved, especially in very acid mouths, leaving it very porous, but still more hard, notwithstanding its porosity, than it was when it was first introduced. I don't know whether this will be acceptable, but he asked some such question as that.

DISCUSSION—CHLOROFORM ANESTHESIA.

Dr. E. L. Townsend.—Mr. President, Dr. Fynn starts with the assumption that choloform is the greatest of all anesthetic agents, but adduces no argument to prove the assumption, and states that when everything is favorable chloroform in the hands of a careful operator is absolutely safe. How the Doctor arrives at this conclusion, in the face of the record made by the various anesthetics, he has omitted to give; and we feel that he has given too much prominence to the personal aspect of the careful operator and neglected the subject of chloroform. The personality of the operator enters largely into many papers presented before dental societies, and the assumption that any operator is anything but skillful and careful is leaving the subject and discussing the individual, which is altogether out of the line of scientific investigation. What one man is able to do some other can do equally as well, and it is safe to say that no one is greatly superior to his colleagues and immediate surroundings, and, therefore, we prefer to eliminate the careful operator and let chloroform stand on its record, which heads the list as an exterminator of unfortunate patients.

The Doctor admits that the vulnerable point in his argument is that we are unable to determine who can or cannot stand the administration of an anesthetic. If it is true that we cannot tell who are safe and who are not, then it behooves the operator to exercise that care which gives his patient the benefit of the least possible danger and risk. In this discussion I cannot do better than to quote from Turnbull. He says: "Chloroform is the most potent and agreeable anesthetic, but the most dangerous, and is the one in which death may occur at any stage of inhalation. Choloform kills so suddenly that neither skill nor care can always guard against a fatal result." If this be the case, then the operator who has the fearlessness to administer chloroform for such minor operations as dentists are called upon to perform must needs be very stubborn or ignorant of the accepted status of chloroform. We, as dentists, are called upon to select the anesthetic, and if we knowingly select the most dangerous the law cannot excuse us, but is bound to hold us responsible. The patient may express a preference for some one or the other, but the operator must use his own judgment; for in this matter he alone must be the responsible party.

In commenting upon Dr. Fynn's description of dangerous symptoms, the arrest of the heart's action is a phenomenon of excitation and not of paralysis or paresis. This is true of at least four out of five cases. No anesthetic can be called absolutely safe, and children are no exception to this rule. Children that are healthy, well-cared for and have proper sanitary surroundings will take an anesthetic better than adults; but sickly and delicate children are not fit subjects for general anesthesia.

Dr. Asay.—Mr. President, the question of anesthesia has been a subject of years' duration and is still a complex question in the minds of a great many; some contending that chloroform is the safest anesthetic, others ether, and others nitrous oxide. I don't know who in this assemblage could speak from more experience on the point of the use of chloroform than myself. I suppose that I have administered chloroform in my lifetime a thousand times. Over a long period—say, over four years—I served as a surgeon in the United States Army. During the campaigns I have stood at the table day after day, and witnessed the giving of chloroform and noticed its effects. I think I am fully conversant with the manner in which it should be given. The great trouble in the administration of chloroform has been in the absolute forcing of it into a patient. The way that we adopted from 1861 to 1865 in administering chloroform was this: We would lay over the mouth of the patient, who was in a recumbent position, a simple piece of lint, say about four inches square, and on that the assistant surgeon, or whoever was attending, would drop the chloroform drop by drop until perfect anesthesia was produced. Then, when the stertorous respiration was produced, we were ready to operate. That is in surgery in prolonged operations. In dental operations we do not require to go to that extreme. It is simply enough to tide us over a few moments' work in the extraction of from one to perhaps twenty-eight or the whole thirty-two teeth. It is very seldom that we have to administer to the latter extent; therefore the narcosis need not be so intense as it would if we were going to operate for amputation or resection, or for the ligation of an artery. The principle, as I understand it in the paper, in dental operations, is simply to produce an effect that will tide over for a few minutes' work. Now, then, in regard to the difficulty, or the impediment in the way of chloroform. I would under no circumstances give chloroform to a person with an irregular pulse; that is, in civil practice. I would not give it to them if I saw any other chronic infirmity because, as the paper says, it is always dangerous to give it under those conditions, particularly in the case of albuminuria or diabetes, or where there was any tuberculous manifestations at all. You cannot have one of those diseases without more or less irregular pulse and a disturbance of the heart's action; and wherever you have such disturbance of the heart's action chloroform produces paralysis of the nerves of the heart and also the pneumo-gastric nerve that is liable to cause the death of your patient, in spite of all you can do. Restoration from chloroform is only when the heart has not ceased its pulsations. Life goes on just as long as the heart pulsates. I noticed in one case of death particularly, under the influence of chloroform, that the pulsation of the heart ceased immediately after the first few inhalations of the chloroform. In that connection I might mention another point, that in army circles we always considered that the first two or three inhalations were the most dangerous, particularly when we had to lay a man down to force it into him. The first effects of chloroform are stimulant, after which it becomes narcotic. It acts so suddenly sometimes that you cannot anticipate results or know exactly their cause. Now, in restoration from chloroform the great reliance is to be placed in the recumbent position, and on artificial respiration. If a man is insensible, you cannot get him to drink whisky, neither can you get him to swallow any other stimulant or antidote. It is true in these latter days you can inject those things. Subcutaneous injections were not thought of at all in those times. Those injections may assist, and no doubt materially do, but the main reliance is to be placed on artificial respiration in order to get the oxygen into the blood. The blood is disoxygenized, and you must get the oxygen back there in order to produce the recovery. The electric current, if intelligently applied, I believe would prove a valuable adjunct in re-action.

Dr. Chance.—I want to give you some thoughts on chloroform. I indorse very largely what has been said in the paper. I have given chloroform a great deal in my life. I have done it, feeling and realizing that the medical profession would not indorse my action. I was the second man to give nitrous oxide in the State of Washington. Dr. Hicks was the first. I have given nitrous oxide—thousands of gallons. I made it once, and then I bought it already made. I have given ether. I have given 1-2-3. It cost me $18 to pay for a broken head-rest when ether was administered. You never heard of a death by chloroform except at the time of the operation. You have heard of deaths by nitrous oxide, after the administration, when the patient had left the office. You have heard of death by ether subsequent to the administration also. Now, Dr. Bonwill has helped me considerably on the administration of chloroform. I am going to give you my idea of giving chloroform. I want to eliminate from what I have to say the theories advanced as to the action of chloroform on the nerve centers or the heart's action. We will assume that that is all right. Now, I give chloroform to my own children, but I never gave it that I was not afraid, and that is the reason I have had no accident. But it is not an abject fear; it is a different kind of fear; I dare to do, because it is necessary. There are three stages in the administration of chloroform. First, relaxation; second, rigidity, if I may use the term; and lastly complete narcosis. If I have a tooth to extract (we are talking about the administration of chloroform for dental operations, not capital operations) I always talk to my patient. I say to the little girl or little boy, as the case may be, "I am not going to hurt at all." I must have the child's confidence first. Then I avoid shock; it is the shock that kills, and not the anesthetic, in nine cases out of ten. I take a pocket handkerchief, and I say to the little fellow, or the adult, "Suppose it were a summer day and the flies were bothering you, you would put your handkerchief over your face; you could breathe just as well, keep the flies off and go to sleep as though you had no handkerchief and were not being annoyed by the flies."

Now, suppose that you take Dr. Bonwill's idea of rapid breathing. You will produce a species of anesthesia, because you start the oxygen. Instruct the patient to hold up the right hand. When you see it fall take out the tooth, only one; then give it to them again. That is my idea of giving chloroform. I have thrown out of my office everything except chloroform. And I give it in that way. I tell you, if you understand your patient and go at it that way, you will have no accident.

A Member.—I will ask, where there is danger of heart failure in these operations, if a heart tonic cannot be given previous to administering the chloroform, and thereby avoid the danger?

Dr. Sichel.—Mr. President, since the last century we don't use any more chloroform in surgical operations, but we use Billroth's method of chloroform, ether and alcohol, and you never know of any serious injury to the patient in surgical or in dental operations.

Dr. Bonwill.—Gentlemen, this is a very interesting subject to me; not so much in the use of anesthetics of to-day—chloroform, ether, nitrous oxide and the other preparations; but in an experience of twenty years I have not used an anesthetic in my office, although I have an instrument holding one hundred gallons of nitrous oxide. I have not used any anesthetic, nor allowed any anesthetic to be used in my office, nor do I send my patients to other men. Of course, you have all heard of the rapid respiration. I believe the gentleman made mention of it to-night with regard particularly to its application before giving chloroform. After the idea of rapid respiration came to me, it was so simple, so trivial, I could hardly believe for six months that it was possible, although seeing it all that time every day almost, when I extracted teeth. It is something that has been laughed at and ridiculed, and still at the same time is recognized by the very best men of the medical and dental professions. One man I met in Europe, Dr. Brown-Sequard, about two years after my article appeared in the *Journal of Medical Science*, and also in the *Scientific Amer-*

ican, and was published throughout the world, I believe; he said to me, "Bonwill, I knew, I understood, as soon as I read your article, without trying it, that it was a fact. It is a living fact. I consider it strange that others have not thought of the same thing, because we have physiological facts bearing directly upon it. At the same time, they laugh at it. They laughed at me. They have laughed for twenty years. I never answer a man's laugh."

These things come to me from time to time. Every week I see some manifestation of it. We are frequently told that ether and chloroform and other anesthetics have been used, and they have been an absolute success. It is not wonderful to be laughed at by dentists. It is not wonderful, when they have a preparation like nitrous oxide at hand that they will say, "We will use that instead of using ordinary air."

It is not wonderful because medical men when that came out suggested analgesic state, instead of anesthesia. They understood the absolute action of air when it went into the lungs. The effect on the general circulation was not recognized. I did not know it myself at the time that the action of oxygen was indirectly in the lungs, and was in the circulation. It is a recognized fact now; absolutely true. I said, while some differed with me, that it was not over-oxygenation. When you are compelled in a lengthy operation to give ether or chloroform, either one, by making the patient breathe rapidly for one minute, there is at least five times the amount of oxygen that passes into the circulation that is normal, more than is necessary, that you have over-stimulated your patient beforehand, and there don't begin to be the result that there would be otherwise. Not only that, gentlemen, but the quantity of the anesthetic that is given is diminished at least one-half. You do not find, even with this nitrous oxide gas, that it has taken the effect of over-oxygenation. It is not over-oxygenation that produces the anesthetic effect.

An important thing in regard to chloroform anesthesia I discovered in experimenting upon myself the first time. That was in performing an operation on my own mouth when my teeth were peculiarly sensitive. I said to myself, I will try chloroform, and see if there is any way I can destroy the sensibility to pain, and at the same time be conscious of what I am doing. I found that it increased the sense of touch, it magnified the sense of touch, at the same time that it diminished the pain. I was conscious of what I was doing. That was an important thing to find out. And it was thus that I tried to follow in the destruction of sensitive dentine. I didn't fare very well, because it made my patients sick. I could tell you how I did do that afterwards, by simple rapid respiration.

Now, this gentleman, though I admire his spirit in saying that chloroform is as safe as an other anesthetic, puts in a good many qualifications. My opinion is that if I could have introduced rapid breathing as a pain obtunder before nitrous oxide came out, you would all be using it. It is always a perfectly safe thing.

I have had my patients, by this rapid respiration, paralyzed to their elbows, so they could not move their arms. Those who had their hands closed could not open them; if opened they could not close them.

It is strange what dentists will do—I must say in their ignorance and prejudice. I gave this to the world. But do you know there has never been a dental society that has ever asked me to read a paper on that subject. Where is their liberality?

A Member.—In California.

Dr. Chance.—We might amend that by saying the Pacific Coast.

Dr. Bonwill.—Thank you. I had to go before the Franklin Institute, a scientific body, in order to read my paper. Instead of asking me out, they got another party to read the paper—to bring my paper into ridicule. They invited him before the society. I had not the right to open my mouth upon it, because as an inventor and patentee that society had placed me under the ban, so that I could not open my mouth. I thanked them very kindly.

I tried chloroform. The next that came to me was the application of electricity. Away back in 1855 that was. I found that by reversing the current, sending it from the nerve centers to the periphery, I produced a profounder effect than I could from the periphery to the nerve centers. In a great many patients it reduced the pain; in extracting a tooth destroyed the sensation of pain. While I was operating upon one of my patients with electricity I hurt him badly. What did he do? [Illustrating, the Doctor here drew a deep breath very quickly]. Ah-h-h! I said at once: "Nature's anesthetic." I went back to my boyhood, when I used to pinch my fingers or get hurt. It put it in my mouth this way [illustrating]. The pain seemed to go away. Nature's anesthetic, I said. You will find that throughout the whole of animal life. I went on from that one thing. In all my operations upon sensitive bone I make use of this diversion. In cutting out sensitive bone with sharp instruments, excavators, burs and things of that kind. I always tell the patient when I am going to hurt them, as they say "Ah-h-h" I follow it. Now, you will see how I got hold of rapid respiration. At first I did not think of rapid respiration. But I said, "That is something more than mere diversion. There is some anesthetic effect here. I must look into it." What action has the oxygen on the blood? It is simply setting free through the circulation carbonic acid gas. Now, when I am running my heart commences to beat faster, there is a greater number of pulsations. I am compelled to breathe faster. When my heart is at the beginning, say seventy in a minute, I commence, and from twenty respirations go up to one hundred. It is the oxygen that sets free the carbon dioxide in the blood, and it is going past the heart, going to the lungs, and that part is not only affected directly by the carbon dioxide, but the nerve centers are affected. There is an effect produced. It is not an over-stimulation of oxygen, but it is the effect of the oxygen setting free five times the amount of carbonic oxide.

There is everything in the way you do it, and yet it is one of the simplest things imaginable. If you read my article some time ago on hypnotism, personal magnetism and rapid breathing you would see. Men have said to me, it is personal magnetism. A man who read the article on the subject of anesthesia said: "I see how you do it: personal magnetism." Nevertheless, it is a fact. I know what it is. When I commence with rapid breathing, I simply say to the patient: "Listen to me; do just as I do. It will not hurt you. I am going to put this instrument on the tooth." I put it upon the tooth and commence the operation. The first thing you know it is extracted. I have the evidence over and over again that I have not hurt them. They sometimes say: "You must have hurt me, because I knew what you were doing." When I say to you that for sixteen or eighteen years I have not used any preparation in my office, but have followed this method, I certainly could not have been fooled all this time.

SAN FRANCISCO DENTAL CLUB.

THE San Francisco Dental Club held its regular weekly meeting at the club rooms, 235 Post street, Tuesday afternoon, August 21st, at 3:30 o'clock and in the evening at 8 o'clock. Dr. W. J. Younger in the chair.

Dr. C. M. Carr presented a clinic during the afternoon upon the implantation of a central incisor root in the position of the first superior left bicuspid for the purpose of attaching an anchored, adjustable and removable partial denture; Dr. W. J. Younger being the patient. The Doctor also exhibited two patients wearing anchored dentures, together with an extraordinary case of irregularity.

EVENING SESSION—DISCUSSION.

Dr. A. F. Merriman, Jr.—I heartily approve of Dr. Carr's method of inserting anchored dentures; was much pleased with his work and desire to compliment him, together with Dr. Younger, who was an excellent patient.

Dr. Russell H. Cool.—When Dr. Carr first presented his new method I did not think much of it, but upon taking the matter under further consideration I have become quite an enthusiast. I consider the method beyond anything I have ever seen. The suction plate is entirely done away with, which I deem a great boon.

Dr. F. M. Hackett.—I witnessed the operation and have nothing but praises to offer for it. Trust it will be a success.

Dr. C. M. Carr.—It took me five years to bring this up to its present state of perfection. The reason implanted teeth become loosened is on account of the leverage they are required to withstand against their crowns. I would insert a full denture or two roots, if necessary, eight days after implanting. The slight pressure of the springs seem to stimulate union instead of retarding it.*

Adjourned.

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*[Dr. Carr's paper. entitled "Anchored, Adjustable and Removable Dentures," as read at the Midwinter Fair Dental Congress, explaining his theory and *modus operandi*, together with full illustrations upon the same, will be published in the October edition of the PACIFIC COAST DENTIST.—ED.]

DENTAL CLUB MEETINGS OF TUESDAY, AUGUST 28TH.

AFTERNOON SESSION.

Two clinics were presented; the first by Dr. A. F. Merriman, Jr.; subject, "Interlacing Heavy Gold." The cavity to be filled was a large one on the post-proximal and median surfaces of a right inferior second molar.

The second clinic was by Dr. J. D. Hodgen; subject, "Dies and Counter-Dies," with an alloy of his own. Both dies and counters were made of the same alloy, the counter being made first by the dipping process. Several were made, illustrating the ease and perfection with which the work could be accomplished.

L. A. Teague exhibited a case of irregularity for consultation.

EVENING SESSION—DISCUSSION.

Dr. Russell H. Cool.—I was very much interested in Dr. Merriman's operation. He cliniced on a very difficult filling, one which I consider the most tedious of all that we are called upon to insert. The Doctor's manipulation, speed, and method of interlacing heavy gold like Nos. 60 and 120, with cylinders, and countering without the use of a matrix, was a very interesting sight to me. Especially since it was done in less than an hour. I differ in method of filling the lower part of the cavity, preferring to use non-cohesive cylinders or Williams' crystaloid. The contour of the filling Dr. Merriman inserted was all that could be asked for it.

The clinic presented by Dr. Hodgen was something entirely new to me. I never saw his method of casting dies before, and was glad to see it demonstrated by him. He makes an absolutely perfect die, and very quickly, of an alloy that, as he says, will stand an overarm-swing blow of the sledge-hammer.

Dr. Carr.—For Dr. Merriman's clinic I have nothing but praise. He certainly handled his instruments and material in a way commendable to any operator. His work was quickly dispatched and beautifully done.

Dr. Lundborg.—I can certainly offer no criticism on Dr. Merriman's work. It was excellent from beginning to end. He used the automatic and engine right-angle mallet, both of which worked to perfection in his hands.

Dr. Hodgen's alloy for dies and counter-dies interested me very much, and I was pleased with the evident perfection of and the short time required for making the dies and counters.

Dr. Cummings.—I was much interested in the clinic by Dr. Merriman; he did easily with the right-angle mallet what could not have been done with any other.

Referring to Dr. Hodgen's clinic: a good method of making dies is something I have wanted very much to see. His method of reversing and making the counter first is an innovation, as far as I am concerned. He worked very rapidly, and his dies were perfect.

Dr. Younger.—Dr. Merriman should feel very much gratified. As an operator I never felt one so gentle and sympathetic as he; I really did not realize what an immense job it was until all was finished.

Adjourned.

MEETINGS OF TUESDAY, SEPTEMBER 4TH.

Dr. Lundborg presented a clinic upon the insertion of gold by hand pressure. Situation of cavity—left inferior cuspid, labial cavity—caused by erosion, extending from the anti- to and including the post-proximal surfaces and below the cervical margin. Material—Watts' crystal gold. No. 2, and Williams' rolled, No. 120.

Several cases of irregularities were presented by Drs. Younger and Cool.

Dr. Pague exhibited a case of suppuration of the antrum that had been under his treatment.

The club feels deeply indebted to Mr. W. J. Evans, of New York, representing McKesson & Robbins, manufacturers of pyrozone, tartarlithine, etc. Mr. Evans kindly presented the club with a magnificent rosewood gavel, beatuifully ornamented with gold and bearing the following inscription: "*Stomatological Club.*" His generosity included a goodly supply of 3, 5 and 25 % solutions of pyrozone, tartarlithine and atomizers.

CALIFORNIA STATE BOARD OF DENTAL EXAMINERS.

THE California State Board of Dental Examiners met at the office of the Secretary, 1005 Sutter street, San Francisco, September 6th. President W. J. Younger in the chair.

The following resolution was introduced and adopted:

WHEREAS, The American College of Dental Surgery of the city of Chicago, State of Illinois, has graduated and issued a diploma to one of its students after an attendance of but one course of instruction in said American College of Dental Surgery; and whereas, said student was admitted into the senior class of said American College of Dental Surgery upon a diploma from a school of no reputable standing; and whereas, said diploma had been previously submitted to this Board and refused endorsement; be it

Resolved, That said action of the American College of Dental Surgery does not meet the approval of this Board; nor is it in accordance with the rules and regulations of this State Board; therefore, it is further

Resolved, That hereafter no diploma conferred by said American College of Dental Surgery, and issued prior to this date, to wit, September 6, 1894, be recognized by or endorsed as satisfactory to this Board in the meaning of the Act of March 12, 1885.

The following were granted certificates to practice dentistry in the State of California upon the endorsement of their diplomas:

C. L. Thomas	Escondido, Cal.
Henry Powell, Jr.	Haywards, Cal.
A. E. Sparks	Alameda, Cal.
F. R. Cunningham	Los Angeles, Cal.

Affidavits and applications were received from the following, praying for certificates to practice, by virtue of having been in practice March 12, 1885:

A. McL. Barnes. Laid over for further investigation.
E. W. Farmer. Laid over for futher investigation.
J. J. Leek. Rejected.

The following change in the usual form of annual examinations was made by the adoption of the appended resolution:

Resolved, That the California State Board of Dental Examiners in examining candidates for qualifications to practice dentistry in the State of California adopt the course recommended by the National Association of Dental Examiners, in examining applicants, and adopted by the other States, and that the Board examine in the branches of *anatomy*, *physiology*, *pathology*, *histology*, *hygiene*, *materia medica*, *therapeutics*, *chemistry*, *metallurgy*, *operative* and *mechanical dentistry* and *dental jurisprudence*. Fifteen questions are to be submitted in each branch. Candidates being permitted to select and answer only *ten* of the fifteen questions of each department and receive markings thereon. Examinations to be both written and clinical. Seventy-five per cent. will be required on the written examinations, and, in addition will be required of all those who are successful in the written examinations, a satisfactory clinical examination.

The Board will meet for the examination of candidates to practice in the State of California on the first Tuesday in August, 1895, in San Francisco. J. D. HODGEN, D.D.S., *Secretary*.

CALIFORNIA STATE DENTAL ASSOCIATION.

AT a recent meeting of the Trustees of the above-named Association, applications were received for membership by a large number of dentists. The applications were duly investigated and the following were elected:

Fred Teague	San Francisco.	J. W. Davy	San Jose.
M. J. Dunn	San Francisco.	D. E. Nash	San Jose.
W. F. Sharp	San Francisco.	F. K. Ledyard	San Jose.
W. E. Price	San Francisco.	H. R. Harbeson	San Diego.
C. W. Hibbard	San Francisco.	F. J. Barnes	San Diego.
Alfred Cane	San Francisco.	John C. McCoy	Santa Ana.
L. L. Dunbar	San Francisco.	Carolyn M. McElroy	San Quentin.
Rollin A. Summers	Oakland.	J. A. D. Hutton	Berkeley.
T. W. Hall	Oakland.	E. W. Biddle	Healdsburg.
C. S. Lane	Oakland.	H. T. Hendricks	Hanford.
W. H. Halsey	Oakland.	E. M. Porter	Napa.
Russell H. Cool	Oakland.	N. I. Boone	Red Bluff.
H. D. Boyes	Oakland.	Jos. Pfister	Suisun.
A. F. Merriman	Oakland.	O. J. Litchfield	Sabastapol.
A. F. Merriman, Jr	Oakland.	G. B. Lemon	Salinas.
J. M. Dunn	Oakland.	H. M. Coombs	Visalia.
A. J. Thomas	Sacramento.	Jos. T. Thomas	Virginia City, Nev.
W. C. Reith	Sacramento.	M. O. Wyatt	Winters.
W. Wood	Sacramento.	W. H. La Baree	Weaverville.
Max Wassman	Los Angeles.	R. Edgar Campbell	Woodland.

For the convenience of any of these gentlemen who would like to perfect their membership, so as to take part in the next annual session of the association, the roll has been left with the Librarian at the Dental Club, 235 Post street, where it may be signed.

It is the desire of the Trustees to double the membership of the association, if possible, this year, and the members are urged to procure blank applications from the Secretary, and solicit membership from all reputable members of the profession.

A committee has been appointed to formulate a programme for the coming sessions, and it is hoped that a grand time will be had. Fraternally, W. Z. KING, *Secretary C. S. D. A.*

THE OREGON STATE DENTAL ASSOCIATION.

THE Oregon State Dental Association will hold its second annual meeting at Salem, October 3, 4 and 5, 1894. Following are the officers for 1893–4:

President—S. J. Barber	Portland.
Vice-President—O. E. Smith	Marshfield.
Secretary—J. T. Tate	Portland.
Treasurer—Wm. Koehler	Portland.

Special pains have been taken by the Committee on Arrangement to make this meeting both instructive and entertaining, and in the programme presented it is expected that the profession at large will show its interest in the progress of dentistry in Oregon by a hearty co-operation and large attendance.

Essays will be presented as follows:

Dr. S. J. Barber, Portland; subject, President's Address. Dr. W. C. Logan, Astoria; subject, "Crowning of badly decayed roots." Dr. C. M. O'Leary, Portland; subject, "Mouth Breathing;" illustrated with casts. Incidents of Office Practice—Discussion opened by Dr. W. V. Henderson, Eugene. Dr. William A. Cumming, Portland; subject, "Crown and Bridge Work." Dr. O. C. Awbrey, Albany; subject, "Articulation of Teeth, with reference to the Bonwill Method;" illustrated with casts. Dr. H. C. Miller, Portland; subject, "Orthodontia;" illustrated with casts and charts. Dr. N. R. Cox, Portland; subject, "Diseases of the Antrum." Dr. E. L. Lane, Portland; subject, "Cocaine." Dr. E. E. Cawood, Portland; subject, "Children's Teeth." Incidents of Office Practice—Discussion opened by Dr. S. A. Mulky, Independence.

Clinics will be presented by the following:

Dr. S. J. Barber, Portland—Bleaching teath; also removing green stain. Dr. John Welch, Portland—Filling with crystalloid gold. Dr. H. C. Miller, Portland—Practical case of bridge work. Dr. L. E. Hibbard, Portland—Contour gold filling, with engine mallet. Dr. E. G. Clark, Portland—Fitting Logan crown with rubber-dam over root. Dr. J. M. Keene, Salem—Gold filling with automatic hand mallet. Dr. W. A. Wise, Albina—Porcelain work. Dr. F. E. Ferris, Portland—New appliances in dentistry.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

THE eleventh annual session of the National Association of Dental Faculties was held at the Hygeia Hotel, Old Point Comfort, Va., commencing Saturday, August 4, 1894; the President Dr. H. A. Smith, of Cincinnati, in the chair.

The resignation of Dr. J. E. Cravens as secretary was accepted, and Dr. Louis Ottofy, of Chicago, was made secretary *pro tem.*

The following schools were admitted to membership during the meeting:

Western Reserve University, Dental Department, Cleveland, O.—H. L. Ambler.

Western Dental College, Kansas City, Mo.—D. J. McMillen.

With reference to the application of Howard University, Dental Department, the Executive Committee recommended that in consequence of changes in and inadequacy of its dental department the application be rejected. The report was adopted.

The report of the Executive Committee recommending the admission of the University of Buffalo, Dental Department, to membership, was amended by the addition of the following clause, and then adopted: "When the honorary degrees conferred upon Messrs. Southwick and Howard are returned to the university and revoked, and official notification of such revocation filed with the secretary of this association."*

The amendment to rule 5, offered by Dr. Hunt last year, making the rule read as follows, as adopted unanimously.

"(5) STANDING OF UNDERGRADUATES IN MEDICINE.—Undergraduates of reputable medical colleges, who have regularly completed one full scholastic year, having attended at least seventy-five per cent. of a five months' term, and passed a satisfactory examination in the studies of the freshman year, may be admitted to the junior grade in colleges of this association, subject to other rules governing admission to that grade."

The following new applications for membership, with their recommendations, were reported by the Executive Committee:

Dental Department, Cleveland University of Medicine and Surgery, Cleveland, O. Recommended by Drs. J. Taft and J. E. Garretson.

Cincinnati College of Dental Surgery, Cincinnati, O. Recommended by Drs. James Truman, T. W. Brophy, F. J. S. Gorgas, and J. A. Follett.

Birmingham Dental College, Birmingham, Ala. Recommended by Drs. H. W. Morgan and C. V. Rosser.

University College of Medicine, Dental Department, Richmond, Va. Recommended by Drs. F. J. S. Gorgas and H. W. Morgan.

Atlanta Dental College, Atlanta, Ga. Recommended by Dr. H. W. Morgan and the faculty of the University of Tennessee, Dental Department.

Dr. Louis Ottofy offered a recommendation, which was adopted, that all colleges, members of this association, shall increase the college course of 1895–6 to not less than six months.

The following resolution from the Executive Committee was adopted:

Resolved, That any college or colleges making application for membership in the National Association of Dental Faculties shall be required to secure and present to the Executive Committee the approval and indorsement of the Board of Dental Examiners of the State (where such boards exist) in which such colleges are located, before their application can be considered.

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* The Dental Department of the University of Buffalo complied with these conditions on August 18, 1894, and is therefore admitted into full membership.—LOUIS OTTOFY, *Secretary*.

The following was introduced, and under the rules lie over till next year:

By Dr. Peirce:

Resolved, That, in view of the recommendation of the Executive Committee, this association will require that all colleges, members of this association, shall extend the term of the session of 1896–7 and of succeeding sessions to not less than seven months each.

By Dr. Truman:

Resolved, That on and after the session of 1898–9 the regular session of each of the colleges belonging to this association shall be extended to four years.

By Dr. Ottofy:

Beginning with the session of 1896–7 the examinations conducted by the colleges of this association shall be in the English language only.

By Dr. Ottofy:

Beginning with the sessions of 1895–6 no college shall be permitted to retain membership in this association if it is conducted or managed, in whole or in part, by any person or persons who do not practice dentistry in accordance with well-recognized and generally accepted forms, generally known as dental ethics, or if they are owned in whole or in part by men or women who are engaged in disreputable dental practice, or if any college have upon its list of trustees, the faculty, demonstrators, or in any other capacity, any one who does not practice dentistry in accordance with the principles above mentioned. This shall refer to dentists only.

By Dr. Ottofy:

Beginning with the session of 1896–7, the following shall be the requirements for the admission of students to the colleges of this association:

a. A certificate of having successfully completed at least one full year's course of study in the collegiate department of any college or university registered by the Regents of the State of New York as maintaining a satisfactory standard.

b. A certificate of having passed, in a registered institution, examinations equivalent to the full collegiate course of the freshman year, or to a completed three years' academic course.

c. Regents of the State of New York pass cards for any forty-eight counts.

d. A certificate of having passed the matriculation examinations of any university in Great Britain or Ireland, or of having completed a course of study recognized as an equivalent therefor.

e. A certificate of graduation from any registered gymnasium in Germany, Austria, or Russia.

f. A certificate of the successful completion of a course of five years in a registered Italian *ginnasio* and three years in a *licco*.

g. The bachelor's degree in arts or science, or substantial equivalents, from any registered institution in France or Spain.

h. Any credential from a registered institution, or from the government in any foreign state or country, which represents the completion of a course of studies equivalent to graduation from a registered New York high school, academy, or from a registered Prussian gymnasium.

By Dr. Gray:

Resolved, That law 7 of the by-laws, which now reads "attendance upon three full courses of not less than five months each in separate years shall be required before examination for graduation," be amended by substituting "six" instead of "five," to take effect on and after the year 1896–7.

By Dr. Willmott:

Resolved, **That at least twenty-nine months intervene between the beginning of the freshman year and the date of graduation.**

The following officers were elected for the ensuing year: Frank Abbott, president; S. H. Guilford, vice-president; Louis Ottofy, secretary; H. W. Morgan, treasurer; J. Taft, B. Holly Smith and Thomas Fillebrown, executive committee; James Truman, Truman W. Brophy, and Francis Peabody, *ad interim* committee.

Dr. Abbott, the newly elected president, was installed, and appointed the following committees:

Committee on Schools—J. A. Follett, F. J. S. Gorgas, Louis Ottofy, C. N. Peirce, and Truman W. Brophy.

Committee on Text-Books—J. D. Patterson, A. O. Hunt, J. B. Willmott, T. E. Weeks. and J. P. Gray.

Adjourned.

AMERICAN DENTAL ASSOCIATION.

SAN FRANCISCO has again lost the American Dental Association. At the last meeting of that body at Old Point Comfort, Va., last August, the following places were nominated for the next meeting: San Francisco, Niagara Falls, and Asbury Park, N. J. The last of which received a two-thirds majority on the first ballot.

Had there been someone from the Pacific Coast to look after her interests, or had not her friends either become indifferent or deserted for the want of someone from the far West to take the lead, San Francisco might easily have had the meeting for 1895.

Asbury Park has been a favorite meeting place for political, religious and other conventions. Educational Hall seats two thousand people. During the present summer the National Educational Association, the National Editorial Association, and many other large bodies have held their meetings there.

Immediately south of the Park, and separated only by Wesley Lake, is Ocean Grove, made famous for its great camp-meetings, held during the month of August. Bridges cross the lake connecting the two cities. All the regular facilities of a city are at hand, such as electric lights, two banks, daily newspapers, and churches of every denomination. An electric street railway belts the town with its well-stocked stores. A drive north, along the beach for ten miles, takes in the following places: Interlaken, Deal, Elberon, Hollywood, Long Branch, North Branch and Monmouth; and south from the Park: Ocean Grove, Avon, Belmair, Como, Spring Lake, Seagirt and Manasquan.

The officers elected for 1895 are as follows:

President—J.Y. Crawford................Nashville, Tenn.
First Vice-President—S. C. G. Watkins..Mont Clair, N. J.
Second Vice-President—T. Fillebrown......Boston, Mass.
Recording Secretary—G. H. Cushing.........Chicago, Ill.
Corresponding Secretary—Emma E. Chase..St. Louis, Mo.
Treasurer—H. W. Morgan...............Nashville, Ténn.

EXECUTIVE COMMITTEE.

C. N. Peirce, H. A. Smith, L. Ottofy and T. S. Waters.

AMERICAN DENTAL SOCIETY OF EUROPE.

THE 19th annual meeting was held at Geneva, August 6th and 8th. The following officers were elected for the ensuing year: President, Dr. Chas. W. Jenkins, Zürich; Vice-President, Dr. Wm. Mitchell, London; Treasurer, Dr. Chas. J. Monk, Wiesbaden; Secretary, Dr. Wm. S. Davenport, Paris. Executive Committee—Dr. Jenkins, Dr. G. C. Daboll and Dr. Hugenschmidt, of Paris. Membership Committee—Dr. Mitchell, Dr. L. C. Bryan, of Basel, and Dr. Waldo Royce, of Tunbridge Wells.

The next meeting will be held at Boulogne, the first Monday in August, 1895.

W. S. DAVENPORT, *Secretary.*

THOSE TRANSACTIONS.—What is the Editorial Committee doing about the transactions of the Columbian Dental Congress? More than a year has now gone by and we have not seen the publication yet.

EDITORIAL.

ANOTHER NAME.

"WHAT'S in a name?" We regret to say too little ofttimes; but no such charge can be made against that which some would saddle us with now. The alphabet is about exhausted.

"Stomatology" is the latest for our specialty. The word is from the Greek—*στσμα*, a "mouth," and *λσγος* a "discourse." A stomatologist is, therefore, one who is versed in the science and functions of the mouth. The only excuse—aside from the desire to originate and change nomenclature—probably for such an idea is to do away, if possible, with the name "dentist," That word is hateful to some, it hasn't a professional ring. There are many excellent reasons, however. why the term stomatology should never gain any place in dental nomenclature. The first and chief one of which is it cannot etymologically supply the true meaning. *Στσμα*, the root word, has already been borrowed to make the word stomach, and in reality the root is more fitted for the coining of this word than for the outlandish use some would ask us to put it to.

Stomata (plural) is also applied to the minute orifices in the epidermis of leaves through which exhalation takes place The original meaning of the true Greek word, as near as it can be translated, was: a breathing pore. Later it was understood to mean a small orifice by which plants and lower animals are enabled to be nourished. The physiological process of which was greatly dependent upon capillary attraction, and, in some of higher orders, a power akin to suction is also found auxilliary.

The human and animal mouth is an aperture for the reception of food for the body, and in which, by its peculiar apparatus of nerves, muscles, bones, teeth, taste, suction, mastication, and deglutation, it is prepared and further introduced into the alimentary tract. Respiration is also exercised, and speech is performed by organs contiguous. In the word *stoma* no such real meaning is found. If the term dentist is not sufficient, let it be that which has already gained some standing, "oral surgery," which includes all. The tendency should be to simplify language and nomenclature, and such cannot be done by the study of Latin and Greek lexicons. Anglo-Saxon derivation is forcible and plain.

The idea reminds us of the man who insisted on howling "conflagration" when his neighbor's house was on fire. Instead of seeking to draw ourselves apart from the laity, let us endeavor to make our specialty more appreciable and plain to them. These are days of practical turn when departures are made.

OBITUARY.

DR. R. B. WINDER.

DIED—At his home at 716 Park Avenue, Baltimore, Md., July 18, 1894, Dr. Richard Bayly Winder, A.M., M.D., D.D.S.

"Dr. Winder was a native of Virginia, born at Drummondtown on the 17th day of July, 1828, and was, therefore, one day over sixty-six years old. He was a true type of the old Virginia gentleman; a man of culture and refinement, with a large mind, cultivated and polished by extensive reading. He graduated in dentistry at the Baltimore College of Dental Surgery, class of 1869, and entered the practice of dentistry at Baltimore, where he continued to live. When the Maryland Dental College was organized a few years later, he became a member of the faculty, where he taught till the consolidation of that school with the old Baltimore College in 1879. In the consolidation he was retained in the faculty and soon became dean, in which capacity he served till his death. He was Professor of Dental Surgery and Operative Dentistry in the 'Baltimore College of Dental Surgery,' and also Professor of Principles and Practice of Dental Surgery, as applied to Medicine, in the College of Physicians and Surgeons of Baltimore. 'Having a fine command of language, as a teacher he had few equals; of attractive manners, he drew his classes to him, and many will be the pangs of grief and sighs of regret from his old students as the news of his death is heralded throughout the world. His name was a household word in every land where dentistry is known and practiced. The country, the profession, the college, all sympathize in this great loss; but especially for her, who now sits in widow's weeds before the hearthstone across which this shadow has fallen, would we drop the sympathetic tear and offer our heartfelt condolence. *Requiescat in pace.*"—[Texas Dental Journal.

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ORIGINAL COMMUNICATIONS.

PRACTICAL SUGGESTIONS.

BY C. E. FRANCIS, D.D.S., M.D.S., NEW YORK CITY.

[Read before the Midwinter Fair Dental Congress.]

WHEN listening to the usual discussions at society gatherings, or perusing the various articles published in our dental journals, an inexperienced practitioner would naturally feel himself puzzled to know how to best fulfill his professional requirements. So widely do the expressed opinions of even the most advanced members of our specialty seem to differ in theoretical speculation and methods of practice that it might seem a difficult matter to determine who are right and who are wrong—who are the safe leaders, and who are blind guides. Many individuals are so prone to run to extremes, so fond of riding pet hobbies, that they can see no sense in any theories but their own, and acknowledge no benefits to be derived from other methods than those which they have adopted. It is extremely difficult for them to look with unprejudiced eyes, or weigh with unbiased minds any advanced ideas or new suggestions, so natural is it for them to cling tenaciously to their fixed opinions or rut-worn notions. Indeed, some individuals will never acknowledge superior attainments in a supposed rival, nor be convinced that they themselves are in error, though overwhelming proofs stare them in the face.

So much of this spirit is manifested at society meetings—this one-eyed view of things—that many of the younger mem-

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NOTE.—The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in this country.

bers of the profession despairingly ask, "What course shall I pursue?"

Dr. A., a worthy professor of operative dentistry in a reputable college, teaches his class doctrines which he considers sound orthodox—certain ways of operating which he assures his pupils are the only correct ones, and he lays down the law according to his own interpretation in a clear and emphatic manner. Dr. B., a distinguished member of the profession, who is called upon to lecture and clinic before the same class, demonstrates methods and states principles quite at variance with the teachings of the beloved professor, and the students are cautioned against adopting the erroneous ideas of those who see things in a different light.

The unsettled "sixth-year molar" question is as much a question of to-day as it was twenty years ago, and will probably remain a question for animated discussions many years to come. Instead of advising us to consider the circumstances connected with individual cases, and treating each in the light of reason, or according to sound, unbiased judgment, our ultra would-be leaders bid us go to this extreme or that.

In the care and treatment of deciduous teeth, and in methods of insuring health and permanency to the second set, we listen to assertions of men who advocate views that differ widely from each other. And so in regard to the expediency of making contour fillings, of cutting separations between the teeth in anticipation of caries; of saving exposed dental pulps; the treatment and filling of roots; the management of alveolar abscess; or the different stages of pyorrhea; the relative value of the various filling materials and methods of introducing them; the treatment of physiological defects, pathological disturbances and lesions of every description. We all like solid arguments; we enjoy sensible criticisms, and believe they result in much good, but mere dogmatic assertions poorly sustained by reason or practice, and which will not bear the scrutinizing light of investigation, are confusing and often of little value.

The chief duty connected with the dentist's practice is to preserve human teeth; one of the main features of which is to stay the ravages of decalcification. Circumstances may not permit the dentist to do what he might to prevent teeth from becoming injured by decalcifying agents, which to a certain extent are continually present in the oral cavity. He must take cases as they come into his hands and do the best in his power to arrest the mischief.

This means that all decayed or decalcified portions of the tooth structure must be removed and the cavities filled with some suitable material that will protect them from further injury.

It seems hardly necessary in this enlightened period to suggest the manner of preparing cavities, for it is to be supposed that every faithful operator will thoroughly excavate such cavities as he intends to fill and carefully trim the cavity-margins. He will also cleanse them by injecting water of a suitable temperature, and sterilize those that are much decayed with some antiseptic agent, then dry with warm air. This much is conceded. We furthermore presume that all desire to make good substantial fillings, and on this point I propose to offer a few suggestions. Unquestionably, the best fillings are those that will most thoroughly seal and preserve the cavities that contain them for the greatest length of time. In the selection of a filling material certain requirements should be considered. "Adaptability" and "solidity" are the principal objects to be sought. Solidity, of course, is an essential feature, but *adaptability* is absolutely necessary in all cases. Many dentists, however, seem to imagine solidity the main feature to be attained, and give comparatively little heed to the thorough adaptation of the material employed to the walls of cavities. There is no single filling material that will serve the best purpose in all cases; and it has been aptly stated that "good judgment" is an essential material in the preparation of the cavities. Gold, tin, amalgam, gutta-percha and the preparations of zinc are all valuable for certain cases, but each should have its proper place. We have all observed many instances where gold as well as amalgam fillings have proved failures. In what cases do most of these failures occur? and why do they occur? Do gold fillings give out because the ribbons of foil or the pellets of gold do not properly cohere together as they are forced into the cavities? Even on grinding surfaces of molars or bicuspids do they, as a rule, wear away from lack of density and thus become valueless? We think not. But where fillings of gold or amalgam give out, do we not usually observe that the margins of the cavities are again broken down by the process of decalcification and the stoppings undermined with decay? This is our belief; and furthermore we believe that in the majority of such cases the failures are due to a lack of adaptability of the filling material to the cavity walls. And this is a matter which is well to consider. Many old-time soft gold tin-foil stoppings have done good service for periods of twenty, forty and even sixty years; fillings, too, that were introduced before the era of our modern appliances; fillings condensed by hand-pressure and with crude and clumsy instruments. No annealing lamp to make the layers of gold stick together; no rubber-dam to exclude moisture; no mallet to aid in securing solidity. Even bibulous paper, prepared spunk and other modern conveniences were unheard of. With the numerous facilities which the present day offers; the advantages of professional preparation which our fathers in dentistry scantily possessed; the opportunities of professional intercourse which they seldom or never enjoyed; the endless variety of modern appliances that tend to simplify operations and render them more complete, it might seem as if dentistry at the present time had nearly reached the point of absolute perfection. To be sure, great progress has been made in dental art, and operations are daily performed that are truly excellent; but for all this we must acknowledge that many, very many fillings fail to preserve the teeth in which they are introduced for any considerable length of time. Yes, many hard-packed and beautifully finished gold fillings, solid lumps of the precious metal that have been malleted with a will, and which their admiring builders have hopefully supposed would last for a lifetime, have within two or three years from the time they were impacted become undermined and loosened.

It is an easy matter to say that in such cases the operations lacked thoroughness, either in the preparation of the cavities or consolidating the metal; but dentists whom we have reason to believe naturally careful and thorough, and whose faithfulness is beyond question, have their share of failure.

We all admit that many individuals are negligent or careless regarding the care of their teeth, and are not sufficiently familiar with the use of tooth brushes and dentifrices. Then, too, some teeth are poorly calcified and lack strength, so are readily acted upon by acidulated collections. But this does not account for all cases where fillings give out.

We have all seen solid looking proximal fillings where a small excavator would find an opening between fillings and cervical borders, and a fine point is not always needed to disclose such defects, for good-sized burs sometimes find room for easy entrance, and many of these in mouths kept in fair condition.

Are not a large proportion of these failures due to a lack of proper adaptability of the filling material? and is not a too free use of cohesive gold responsible for a goodly share of them? Cohesive gold foil has its place, and may be advantageously used for building out contour fillings, but it cannot be well adapted to the walls of delicate teeth. It is sticky and stiff, offering much resistance by its rigidity when manipulated, consequently cannot be forced securely into every desirable nook or space within the cavity. In such cases the oral fluids are sure to penetrate around the borders and cause mischief.

It has already been intimated that the *best* fillings are those which seal most thoroughly and preserve for the longest period of time the cavities in which they are impacted. In cases where slight cavities are found on the surfaces of densely formed or well-calcified teeth at points easily kept clean, it is not a difficult matter to introduce fillings that may be counted on for permanency; but where we find fairly large cavities on approximal surfaces of teeth *not* well calcified the task is more difficult. In the last-named cases, if we hope for the best results we need soft pliable stoppings that may be securely packed against the cavity walls without danger of disturbing or crushing their delicate margins, and which we are sure will neither contract nor expand when subjected to the tests of time. We are here limited to two materials from which to choose—either soft gold or tin-foil. But for what may be considered as extreme cases, or where cavities are large and the walls chalky and disposed to easily crumble away, tin-foil may be counted on as the safest and most reliable stopping. The peculiarity which tin possesses is its ready adaptation to the walls of such cavities. It shows even less rigidity in the process of manipulation than does the softest gold, consequently requires less force to condense it.

A new form of this metal was recently exhibited by Prof. Darby of Philadelphia. It consists of thin shavings of pure block tin, which are very easily manipulated and possess a decided cohesive property without any show of rigidity. Still more recently Mr. E. Kearsing of Brooklyn, one of the oldest and best known manufacturers of gold foil, has succeeded in producing a foil made of refined tin, which also possesses to a considerable degree this much-desired cohesive property. Either of these preparations can be readily consolidated with ordinary pluggers by hand pressure, or any sort of mallet—the same as used for gold. The fillings can be built or extended to any desired contour, and when well condensed their surfaces are sufficiently hard to receive a smooth and brilliant polish.

So, gentlemen, without disparaging the employment of any of the various materials in common use for stopping defective teeth, all of which are valuable in their place, I desire to simply call your attention to the fact that pure tin, as recently prepared, is a most excellent agent for securing safety to frail cavity walls, and for preserving them without further deterioration or loss of tooth structure, and probably for a greater length of time than any other material.

In conclusion, permit me to state that in this very incomplete and hastily written paper I have endeavored to impress the idea that if we would render the best services possible to our patients it is well to take a broad view of whatever pertains to our practice. Instead of being governed by contracted rules, or closely adhering to our peculiar or old fixed methods to the exclusion of all others, let us be eclectic in practice, culling from the best sources; choosing that which is best fitted for each individual case under consideration. Then, by pursuing a course of careful investigation, closely studying cause and effect, and watching the results of our various efforts, we will certainly be in a line of progress, and our achievements will give greater satisfaction to ourselves and to those for whose benefit our operations are intended.

THE PATHOLOGY AND SUCCESSFUL TREATMENT OF PERIODONTEAL AND ENDODONTEAL TUMORS, COMMONLY KNOWN AS ALVEOLAR ABSCESS AND FUNGUS GROWTH OF THE PULP.

BY A. C. HART, D.D.S., SAN FRANCISCO, CAL.

[Read before the Midwinter Fair Dental Congress.]

THE bringing into the profession of a belief radically differing from that already accepted must of necessity create criticism, especially if it be that the belief has in it that which will create for it followers. I do not wish to change your belief to mine for the mere sake of change; accept or reject as you may see its importance. Neither do I know but that there are others whose practice has been the same as mine; but this I do know, that the profession at large are practicing and teaching other methods for the treatment of the conditions under discussion which I, myself, have investigated and found at their best to be tedious, uncertain and cruel.

The term, "alveolar abscess," is a misnomer. The abscess, blind or fistulous, attached to the end of the root of a tooth has no connection with the alveolus. I believe it is an abnormal, degenerate enlargement of the dental pulp and periodonteum, where they formerly entered the tooth, and is always indicative of the death of the pulp. It is never a growth from the surface or substance of the alveolus, as some assert. These sloughing, spreading and disintegrating patches along the sides of the root are forms of pyorrhœa alveolaris, not of abscess.

Pyorrhea alveolaris seems, as death itself, micro-organic in its local manifestations, as the micro-organisms of this disease are only the local manifestations of a neurosis that in a general way renders the parts a culture-field by its local effect upon the tissues surrounding the tooth and those lining the pulp canal. I have not met a single case of well-defined pyorrhea alveolaris in either devitalized or abscessed teeth that has had its origin since the death of the tooth. Many of my colleagues have been consulted as to their experience. Some express surprise at my question, and acknowledge that their experience coincides with mine; while others, who are more conservative, were not sure, never having had their attention called to the subject in that way. I shall be pleased to hear from the profession as to its experience, as I believe the exception I have noted is of great importance and well worth attention and further investigation.

I have purposely made this digression in demonstration of the marked difference as I see it between pyorrhea alveolaris and apical abscess. For in an abscessed tooth we always find the gum adhering closely to the tooth, while in pyorrhea alveolaris the periodonteum only adheres to the tooth, having in most part lost its connection with the gum and alveolus.

An abscess has the vitality and organization of a tumor, and, I think, should rightly be classed as such; for we find the sac isolated from the surrounding parts by distinct investing layers of tissue, and although continuous with the natural parts, abruptly circumscribed in the greater part of its extent. The ease with which the sac is removed in the extraction of the root is prima facie evidence of the correctness of the above view, which exactly corresponds to the definition of a tumor as given by Paget. The sac, I believe, is an independent growth, with an abundant blood supply, and will often continue to grow and discharge its "manufactured fluid" for years after the root has been extracted. I treated one case of fistula that had continued to discharge for fourteen years after the extraction of the root. I think it might justly be classsd as belonging to the class of tumors known as fibro-cystic. Tumors are said to have their origin from some form of inflammation, and in this the growths we are considering agree. The primary cause of these tumors is due in many cases, I believe, to inflammation induced by bacteria and foreign matter of an exciting nature. I am of the opinion that the periodonteum and the pulp are inseparable, closely connected during the development of the tooth, and always by the fibrillæ and by the tissues that enter the apical foramen in the adult. This intimate relation existing between the periodonteum and the pulp has led me to coin the word "endodonteum", which I shall hereafter use when referring to the pulp. I think the term a good one, and hope it will receive the approval of the profession. Every one admits the word "pulp" to be unscientific and ambiguous.

We say incorrectly, I believe, that the endodonteum is the life of the tooth, yet we all know with what tenacity the periodonteum adheres to the endodonteulous tooth, or, as has been demonstrated by Dr. W. J. Younger of this city, to even an implanted tooth, showing that the fibrillæ are still alive, even though the endodonteum has been removed.

Are we not led to wonder at the vitality displayed in those forms commonly known as tumified pulps or, as I have termed them, endodonteal tumors, and may not the reason of this vitality be partly due to enlarged apical foramens, giving an abundant blood supply and connection with the periodonteum? The apparent relation existing between an alveolar abscess (as commonly known) and tumified pulps has led me to consider them together, as I believe them to be derived from a common cause: chronic inflammation, induced by matters of an exciting nature.

In pursuance of the modus operandi for the treatment of periodental tumors, the following description will speak for itself, as it is equally adapted to either of the forms—blind or fistulous: If the patient is suffering pain and considerable swelling be present, the soreness of the tooth will, as a matter of course, necessitate much care in the treatment. With these conditions present, I administer from 5 to 20 grs. of phenacetine, as I have found it very effective in quieting the patient, as well as an antipyretic and anodyne.

Freely lancing the gums, and in some instances drilling through the alveolus to the apex, as preliminaries, wonderfully facilitate the operation, as the pain is greatly lessened and often removed. The rubber-dam should then be adjusted, the tooth carefully dried and given support if possible—oxyphosphate, modeling compound or pink gutta-percha or ligatures being recommended. An opening is next made, if one be not already present, with a spear-pointed drill, that shall afford the greatest facility for reaching the root canals. An Evans root-canal drier with an extremely fine point is next inserted in the opening made into the pulp chamber and the canal cleared of its contents as much as possible, for the more thorough the canal is dried the nearer the sac will be emptied of its contents, as the drying of the root canal with the root-drier tends to create a vacuum which increases its physical property of capillarity, thus drawing into the root canal a portion of the sac's contents. Heat thus applied in acute abscess acts both as a counter-irritant and an anodyne, the importance of which cannot be too highly estimated.

Root cleansers and reamers are next used in much the same manner as recommended by Dr. George Evans of New York, who says that the reaming of a canal not only simplifies the operation of filling, but also opens up the ends of the tubuli and facilitates the permeation of the dentine by antiseptic agents, the advantage of which must be admitted when septic conditions are present. I am aware that some few operators state that they do not ream out canals, but claim to treat and fill them as well as those who do. Careful investigation of the subject seems to demonstrate that the majority, even of these, in obtaining an entrance to a canal enlarge the orifice and to some extent really ream out the canal. The reaming, then, is with them only a matter of extent. I find, as a rule, that in proportion as root canals are properly—I do not mean excessively—reamed and opened up, so are subsequent operations on them satisfactorily performed. Ordinarily but little reaming is necessary, as the roots of the teeth having these cystored formations are generally possessed of unusually large pulp canals and apical foramens; but if the canal is obstructed or small, it is opened sufficiently to get an explorer through. I have had, however, several cases of abscess in which the curvature of the root was so great as to render an opening through the apex impossible. I have not hesitated in those cases to drill through the side of the root, as near the apex as possible, that I might get in direct communicatien with the tumor. One case of this class was a lower sixth-year molar with an abscess of two years' standing. I tried to effect an entrance with the cleansers and used 50 per cent solution of sulphuric acid, and let remain over night, but the curvature was so apparent as to utterly foil my attempt at opening. In desperation I drilled through the side of the root, as near the apex as possible, and with the treatment that followed produced a cure. Over six months have passed and there has been no return of the fistula; neither has the tooth been troublesome in any way. This is only one of several that I have treated in this manner successfully.

The canal now being in condition to easily effect an entrance through the apex, it should be thoroughly dried with bibulous paper and flooded with the dilute solution of hydranapthal in absolute alcohol (ten grains to the ounce). The root-drier is then used to completely vaporize the solution.

I now come to the use of that much-abused medicine, carbolic acid, which, in connection with lactic acid and tri-chloracetic acid, I have found to be of inestimable value in treating these cystoid growths. Carbolic acid is in reality more closely identified in its composition with the alcohols than the acids, and is of three grades—Nos. 1, 2 and 3—the difference of which may be noted by giving the difference in price. The acid ordinarily found in drug stores costs from forty-five to sixty-five cents per pound, whereas the purified acid (Calver's No. 1) costs $2 per pound and is kept by exceedingly few druggists. Most druggists will tell you that there is little difference except in price and name, but my experience has taught me that a cheap article is dear at any price. I am inclined to the opinion that a great per cent of my cures has resulted from the use of Calver's carbolic acid No. 1, which I use full strength—i. e., with just enough water to render it liquid. In this strength it is pumped through the canal and out through the fistula, and will cauterize this tumified tissue as effectually as the hot iron, and strangulates the circulation at once. It coagulates the albumen almost immediately, and expends itself and exhausts its force right there, and leaves none to be absorbed into the system. Pumping carbolic acid through the tooth and out through the fistula is never followed by any troublesome inflammation, as inflammatory action cannot take place in a tissue destitute of circulation. Carbolic acid in the strength named combines the properties of a cauterant, local anesthetic and antiseptic.

Those of you who have studied the parts under consideration have no doubt noticed that there was no marked complexity of these tissues that would of themselves delay nature in her process of repair and cicritrization. Contrawise, she seems to have provided for just such emergencies as we have confronting us. In the great abundance of giant protoplasmic cells, whose function is to absorb and repair broken-down tissue, and as our treatment with the carbolic acid has rendered the tumor into a digestible pabulum for the giant protoplasmic cells, they set to and devour it with an apparent relish to themselves and our patients.

The carbolic acid left in the canal should then be vaporized with the root-drier and the canal saturated with a solution of equal parts of oil of cloves and oil of cinnamon. This is then vaporized in like manner and the canal wiped out with chloroform. The action of heat as secured in the use of the root-drier is of great importance in the sterilization of the partially septic contents of the tubuli. It also has a tendency to slightly enlarge the tubuli, making them easy of medication, as effected in the vaporization of the medicines suggested.

Chloro-percha is then pumped into the canal and, if the abscess be of long standing, out into the fistulous tract. It is then filled solidly to the apex with gutta-percha. The rubber-dam having been removed, attention is given to the fistula. In the event of there being no fistula present, one has to use his own judgment as to the advisability of artificially making one. If there has been no soreness of any consequence, and I am treating a blind abscess, I proceed with the work of cleansing and immediately filling the root-canal; but if there is considerable soreness and pain, an opening is effected as follows: With a small swab, made by wrapping a few shreds of cotton around a cotton-carrier, a drop of tri-chlor-acetic acid is placed on the gum over the apex of the root being treated. By gently twisting the carrier and applying more of the acid you can effect an entrance down to the alveolus without shedding any blood. A spear-pointed drill is next placed in a carrier for hand instruments, and slowly an entrance is drilled through the alveolus to the sac. Carbolic acid is then carried on the swab, so as to thoroughly permeate the tumor, and, if a fistula be present, to cauterize its whole length. In that class of cases where there is reason to believe that necrosis is present, as is often resultant in abscesses of four or five years' standing—although I have had an extremely bad case of necrosis in an abscess of only a month's duration—I follow the cauterizing of the fistulous tract by enlarging the opening, so that I may with more certainty be enabled to get into direct contact with the necrosed bone. The tract is then thoroughly syringed out with pyrozone. Concentrated lactic acid is then pumped into the tract, so as to thoroughly permeate the necrosed bone. I cannot speak too highly in praise of lactic acid in the successful treatment of necrosis. A small tampon of cotton saturated with camphophenique and aristol is left in the opening for two or three days, so if there be any discharge it will have means of escape. It is then removed, connective tissues having begun to form in the fistulous tract, which will gradually heal up, leaving no trace of the opening.

I have treated over 350 cases of periodonteal tumors in both the upper and lower jaw, and have yet to record a single instance in being unable to allay the pain, stop the progress of the disease, or to effect a cure. I have treated with equal degree of success abscessed wisdom teeth of the lower jaw and single-rooted teeth of the upper. I have experienced the most difficulty in treating the first bicuspid upper.

We will now consider endodental tumors:

Dr. James Truman, in describing these growths, says: "This disease is commonly known as fungus growth of the pulp, generally found in the earlier conditions of life and usually in the six-year molar. It fills the tooth nearly full, and the pulp looking more like a piece of gum than anything else. This growth bleeds with the slightest touch. It is not often met with; is difficult of treatment, as yet nothing having been found to stop the disease. The extraction of the tooth is about all that can be done to produce a cure."

Dr. Carrelson is very indefinite in his "System of Oral Surgery"—advising the extraction of the root, and in some cases a portion of the jaw, giving as a temporary curative the keeping of the site of projection stuffed with pledgets of cotton saturated with gum sandarac.

Dr. F. J. S. Gorgas, editor of Harris' "Principles and Practice of Dentistry" (page 302), says of their treatment: "The only remedy in many cases of fungus growth of the pulp is the removal of the tooth. The author has frequently removed them nearly to the extremity of the root, but they have always reappeared in a few days or weeks after the operation. A pulp in this condition resists the action of arsenious acid when applied for its devitalization."

Other writers have expressed themselves in a manner almost similar.

As to the failures others have experienced in treating these tumors I have naught to say. I simply give you the benefit of my experience. My method is to adjust the rubber-dam and dry the tooth. Tri-chlor-acetic acid is then applied until all the tumor has been removed from the cavity of decay and pulp chamber. To the cauterized end remaining in the root-canal arsenic is applied on cotton in the same manner as described by Dr. James Truman, who says: "In preparing my arsenic I take one (1) drop of carbolic acid; four (4) times the amount of iodoform as arsenic. I combine these with a piece of cotton the size of a pinhead, apply to the pulp and cover with a metal cap of tin, as you would in capping a pulp, and seal with oxy-phosphate." I remove the rest of the pulp in four or five days, just the same as is ordinarily done, and fill the canals as I have described in case of abscess. I have had seven consecutive cases, and have yet to record a failure.

ANCHORED, ADJUSTABLE AND REMOVABLE DENTURES.

BY DR. C. M. CARR, SALT LAKE.

[Read before the Midwinter Fair Dental Congress.]

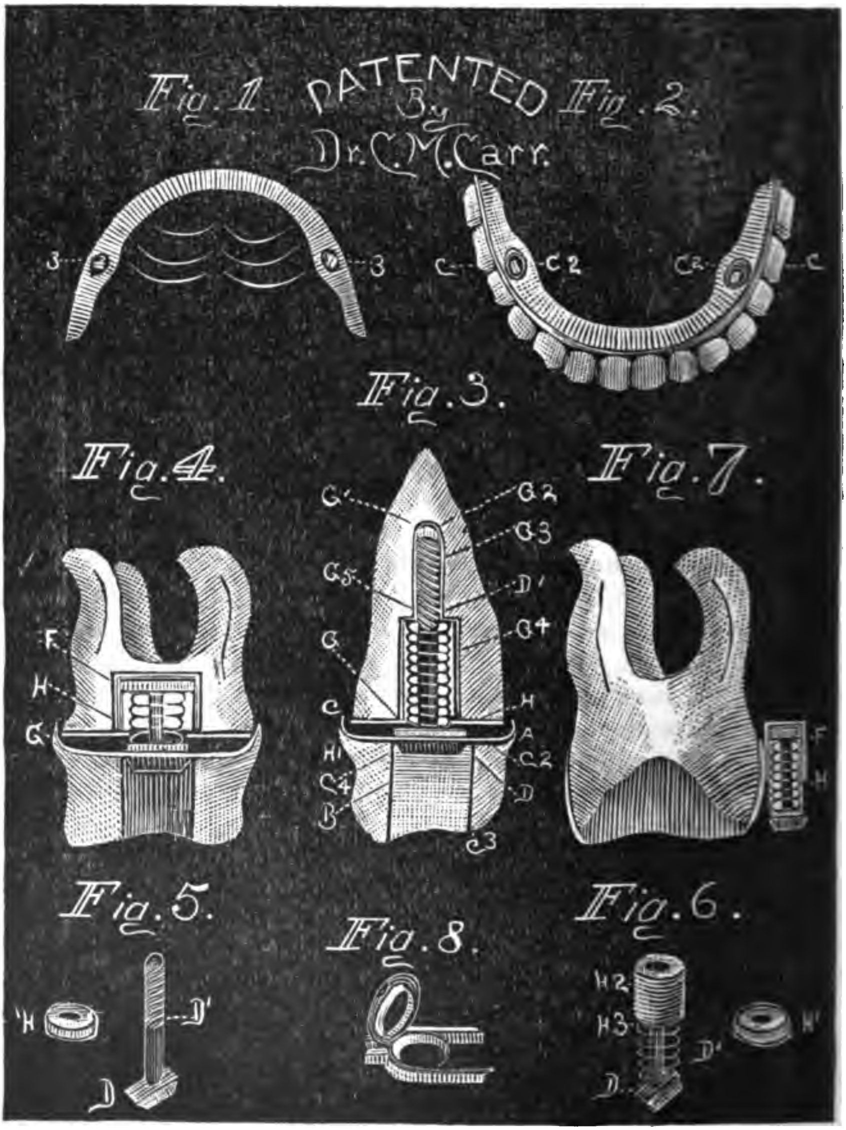
IN presuming to show something new I cannot but feel somewhat embarrassed, for there are those among you whose professional service has extended over more years than are counted in my life. However, as it has been my fortune to think and work, I will give you the result of it, together with some of my ideas.

Webster defines art as the imitation of nature. Such being the case, the more closely we are enabled to imitate nature the more perfect the art. It appeared to me years ago that the imitation of nature in the method of constructing artificial dentures was very crude, consequently the tendency of the better class of practitioners to drift from mechanical dentistry and confine their attention almost exclusively to operative work. In this I must acknowledge that I was no exception to the rule. In the first place when we insert a "suction plate" we cover the palate, which is an unnatural condition, to say nothing of the difficulty and almost impossibility, as it is many times, to obtain a satisfactory adaptation of the denture, on account of the ill-shape of the arch.

On the other hand, when a bridge is inserted, and especially an extensive piece, we overlook one fact, and that is that we are transgressing nature's laws. Now I say this with all due respect to bridge-workers, for we must all admit that there is no finer piece of mechanical art than a fine piece of bridge-work. The objections to this class of work, unfortunately, are as follows: *First*—The rigidity of the bridge is abnormal; the artificial substitutes should, of course, be immovable as far as any liability of being thrown out of position is concerned, yet, to relieve the piers from excessive pressure, it is necessary to secure a delicate movement which will approximate the elasticity of the natural teeth in the alveoli. *Second*—The so-called "self-cleansing spaces" are not only a receptacle for food and débris but often a source of annoyance to the tongue, and consequently an impediment to speech. *Third*—When it becomes necessary to repair an immovable bridge the result is a bungling and clumsy piece of work, as it must be done in the mouth; the removal of the piece generally destroying the crowns covering the abutments. *Fourth*—In adjusting bands or shell crowns on overhanging teeth and those loosened by attacks of pyorrhœa alveolaris subsequent trouble of a serious nature is always possible. The reason for this subsequent trouble is that the bands or crowns are a source of irritation to the soft tissues. *Fifth*—The greatest objection of all is the excessive pressure of mastication imposed on these few natural teeth acting as piers. We cannot impose upon nature without awakening her resentment. Whenever we transgress one of nature's laws she works out her own revenge, and that in this case is by producing an inflammatory condition of the parts, abscess of the roots, and finally their expulsion, along with the artistic structure supported by them.

By the following illustration I will demonstrate to you an improvement, which I term "an anchored, adjustable and removable denture." I do not call it a bridge, for the piers are not called upon to sustain more pressure than comes on a single tooth in ordinary mastication. Nor do I call it a plate, as the palate is not covered but left as nature intended it. It will be seen that by this method each and all of the objectionable features of artificial dentures are overcome. This I accomplish by certain peculiar attachment so that the denture shall bear as a whole upon the gums, imparting a safe and yielding pressure upon the piers or roots to which it is attached or anchored.

Figure 1 represents the gum or alveolar ridge, prepared with



implanted roots to receive the denture after the manner of my improvement. Fig. 2, the inside view of the denture, with countersunk chambers for the reception of the ends of the roots and the attaching device fastened therein. Fig. 3, a vertical transverse section through 3-3 of Fig. 1, and C-C of Fig. 2—a single straight root and the denture. Fig. 4 is a modified form of the device for attaching to molar roots where the crown is badly decayed, rendering it not worth saving, but the roots in good condition. Fig. 5, a detailed view of the adjusting stud. Fig. 6, a modification of Fig. 5 for molar-root attachment, as Fig. 4. Fig. 7, the same as Fig. 6, attached to the side of a gold crown when the tooth to be used for the anchorage of the piece is in good condition, making devitalization or implantation unnecessary. Fig. 8, a view of the spring lid used to close the opening left in the face of the denture at C-C of Fig. 2, to manipulate the adjusting and anchoring stud (D in Figs. 3, 4, 5, 6, 7). Formed in the back of the denture of Fig. 2 are the countersunk chambers C-C, located so as to be directly opposite the roots to which the denture is to be attached (3-3, Fig. 1). Oblong slots (C 2–C 2) are made through bottom of the chamber through which the T or crosshead (represented by the reference letter D in Fig. 5) will pass when the denture is placed in position against the gum; then by rotating the stud a quarter turn, by use of a key made for that purpose, the T-head of the stud (D, Fig. 5) will stand across the slot, thereby locking the denture in position against the gum. The root, being dressed to the contour of and flush with the gum, and the denture countersunk directly over it to such a depth as will correspond to the thickness of base-plate gutta-percha, leaves that much space between the end of the root and the denture when it is snugly adjusted against the gum, as presented in Fig. 3.

In applying this method to a single straight root I first chamber out the root with a fissure-bur for the reception of the lining or bushing (G, Fig. 3), which is made of rolled plate; the outer end (G, Fig. 3) of very thin plate, about 35 standard gauge; the inner end (G 1, Fig. 3) of iridò-gold plate, about 28 gauge. In this inner portion I cut a thread (G 2, Fig. 3) for the reception of the threaded end of the stud (G 3, Fig. 3, and D 1, Fig. 5). From the threaded portion to the outer end the bushing is larger, which leaves a chamber entirely (G 4, Fig. 3) around the anchoring stud, Fig. 5 best representing the stud.

This large portion of bushing is connected with the smaller by soldering and forming a shoulder, the width of which is equal to the difference in diameter of the two sizes of bushing. Upon this shoulder (G 5, Fig. 3) and encircling the anchoring stud I place a spiral spring (H, Fig. 3). The root having been prepared for the reception of this bushing, I now take a small piece of fine gold plate, about 28 gauge, the size and shape of the end of the root, cut a hole through it, which will slip tightly over the outer end of the bushing, then place the bushing with cap so described into place and burnish the small piece of plate (C, Fig. 3) down to the end of the root around the protruding end of the bushing; remove after taking out the stud and spring, solder together and cement back into place in the root. Place the washer (H, Fig. 5) around the stud next to the T-head, then pass it through the spring and screw the stud into place, when it is ready to apply the dentures. The means by which I attach to a molar root where the crown is useless are to dress the tooth off flush with the gum, chamber it out down to near the bifurcations of the root, making the chamber of a considerable larger diameter than I could in the single straight root, as in Fig. 4. I then make an internal threaded tube or cup of irido-gold plate of about 30 gauge (F, Fig. 4), the thread used for the inside of this being about 80 to the inch. The whole is then cemented in the root, the plate covering the end of the root and protecting it from further attacks of decay. Another external-threaded cup (H 2, Fig. 6) with the stud D, Fig. 6, soldered in the center of the bottom, the washer H 1 (Figs. 5 and 6) having first been placed next to the head of the stud and encircling the same, seated in the external threaded cup, H 2; and encircling the stud below the washer is placed the spiral spring (H 3, Fig. 6) the outer end of which is adapted to press against the washer, and that against the denture (see Fig. 4), which, being countersunk, does not come in contact with the end of the root when the denture is in place against the gum. The use of this washer H is to keep the spring from working through the oblong slot when the denture is attached. By rotating the stud D in either form of the attachment you are able to adjust the denture against the gums to any desired pressure, and to remove it a one-quarter turn of the stud will let the oblong slot pass off over the T-head D. It will be seen that by this method the gum takes the major part of the pressure during mastication ; the roots or anchor-piers only sustain the light and yielding pressure imparted to them by the spring just enough to counterbalance the action of gravity when the jaws are at rest, and make these roots hold their equilibrium in the alveoli, neither drawing out nor forcing them farther in, nor yet producing any inflammation or ulceration.

Now in the case of a full denture, where the teeth are all out, I implant a root on either side of the mouth and attach a full denture of fourteen teeth—two roots being preferable to more, as each root has only to sustain the light pressure imparted by the spring, and that would be demanded of each one if there were a dozen. In having only two it is much more easily adjusted by the wearer.

Speaking of implantation, I will say that from my experience during the past five years I prefer an implanted root to any other: First, because it can be placed where you most desire it; second, because it becomes more solidly fixed in the alveola than any other, and, third, it may be chambered out and prepared for the lining while out of the mouth, which is of great advantage. There is only one thing necessary to bear in mind in selecting teeth for implantation: do not use those from youthful mouths; the older the person the better, providing of course that the tooth and periodental membrane are in a healthy condition. They are more dense and less liable to be absorbed. Do not be apprehensive of the union; that will be had in either case, but the older the subject from whom the teeth are taken the more dense are the teeth, and, as I said, the less liable are they to be absorbed. From the fact that roots alone are used, and these dressed down flush with the gum, covered by the denture with countersunk chambers, allowing for a lateral motion as for the relief of the direct pressure, you will not only make it improbable but impossible to have an excessive pressure on the roots, thereby doing away with the probability of inflammation of the parts or absorption of the roots used for the anchorage.

Let me say in conclusion, that the anchored, adjustable and removable denture is applicable in all cases. Where you can, and in many cases where you cannot, attach a bridge it can be used perfectly without either implantation or devitalization; and where you have no teeth to attach to, the implanted roots are cut off flush with the gum, thereby doing away with all leverage, and they are covered up in the countersunk chambers of the dentures, and the relief of the excessive pressure I firmly believe to be the remedy for the absorption of the implanted roots.

AROMATIC SULPHURIC ACID IN THE TREATMENT OF ABSCESSES.

BY J. W. DAVY, SAN JOSE, CAL.

[Read before the Midwinter Fair Dental Congress.]

VERY much has been said and written about abscesses by some of our most eminent men, but I trust that you will bear with me if what I say contains nothing new for your consideration.

Since writing and talking will not bring about the desired results, let us go about it heroically. For twelve years I have stood by the operating-chair, coaxing and pleading with "Mr. Abscess" to desist and allow my patients the comfort they were hoping to receive from my treatment. But I do not think that kind of persuasive means will bring the desired results.

We must get our therapeutical treatment directly to the seat of trouble. We must destroy the pus sac—not by poking the life out of it with a sharp instrument and then allow nature to clear up the wreck, but we must do it in a way to assist nature in her work.

I am here to advocate the cause of aromatic sulphuric acid. Let us see what we may expect in the use of it.

Sulphuric acid (H_2SO_4) very energetically decomposes tooth structure. If we were to use it in an undiluted form we should not only decompose the inorganic tooth substances, but destroy the life of the organic as well. Even in 40 or 50 per cent solution we find it one of the most useful means for enlarging restricted root-canals, by decomposing the walls sufficiently to permit the free passage of the broach, whereby we may be enabled to thoroughly cleanse the canals and subsequently to admit the free passage of the medicaments to the seat of trouble.

May we not decompose the walls to that extent that we weaken the tooth and thereby destroy the usefulness of the organ? I answer *No*. Keep a solution of bicarbonate of soda at hand, to be used by means of the broach or other small instrument which has twisted about it a few fibres of cotton; pump a small amount of the solution into the canal, and you of course arrest the action of the acid by neutralizing it.

Let us now consider the formula for aromatic sulphuric acid:

Sulphuric Acid	2 fluid-ounces
Tincture Ginger	1 fluid-ounce
Oil Cinnamon	8 minims

Alcohol in sufficient quantity to make 20 fluid-ounces.

Aromatic sulphuric acid contains about 20 per cent of officinal sulphuric acid, partly in the form of ethyl-sulphuric acid.

We are taught that no germ can live in a 20 per cent solution of sulphuric acid, much less in aromatic sulphuric acid, where we have in each 1000 parts—

200 parts	Sulphuric Acid
45 parts	Tincture of Ginger
1 part	Oil of Cinnamon
754 parts	Alcohol

If we should use a solution of sulphuric acid—viz., 1 part of acid, 4 parts of water—we should get the mild escharotic effect, but not the stimulating effect of the ginger, cinnamon and alcohol—a something I deem very necessary in the treatment of abscesses.

If we simply destroy the pus sac, and do not assist nature by stimulation to carry off the débris and fill up the cavity formerly occupied by the pus sac, our work has not been complete. Let me state here I do not believe the healthy tissues are acted upon by aromatic sulphuric acid other than the stimulating effect which they receive.

But, on the other hand, dead or diseased tissues are readily acted upon, as in the case of abscess, where we have more or less carious condition of the alveoli. The carious matter is dissolved by the action of the sulphuric acid. The healthy cells are more markedly stimulated to action by the ginger, cinnamon and alcohol, thereby aiding nature to overcome the pathological conditions.

We well know the very large majority of abscesses with which we have to deal are of a chronic nature; and when we find a chronic abscess we also find the surrounding bony tissues carious to a greater or less degree, resultant largely upon the activity of the abscess.

I have stated that I do not believe aromatic sulphuric acid will destroy or decompose healthy tissues.

To substantiate my assertion, allow me to cite Garretson's "Oral Surgery" (pages 771-3). The several cases which are here stated prove the efficacy of sulphuric acid. Dr. Fitzgerald of Dublin even recommends the use of caustic potash to quickly destroy disintegrating bone. But this I think very severe treatment, for we may incur the dangers of secondary injuries, while in the use of the aromatic sulphuric acid we do not have this danger staring us in the face, for when it has done its work upon the dead matter the healthy tissue is not injuriously acted upon.

I hope you will take the trouble to read this matter up carefully at your leisure and note the footnotes by Mr. Pollock; and allow me to urge the free use of aromatic sulphuric acid, feeling confident that your efforts will be satisfactorily rewarded.

I think in all cases where we find a carious condition to exist we should make an opening through the gum and alveolar process, thereby securing good drainage through which we may be enabled to free the cyst of all decomposed matter. I do not approve always of stopping or filling of the pulp canal until we have secured a healthy granulation of the parieties. And more especially in the treatment of abscessed teeth, in which the pulp has long been dead, I prefer leaving the canal open that the cyst may be thoroughly syringed with warm water to cleanse the cavity.

I also think it a good course to pursue in cases where the enamel walls of the tooth undergoing the aromatic sulphuric acid treatment are very thin or frail to protect them from the action of the acid by lining with chloro-percha quite thin. This precaution, of course, to be observed previous to the filling or stopping of the canals. When the softened dentine is allowed to remain, if it covers the enamel walls, I deem it all the protection necessary—providing the acid action be neutralized before dismissing the patient. I might cite numberless cures, the result of the proper and diligent use of this remedy, but two in practice will suffice.

Two years ago, while practicing in Mexico, a woman of about thirty years presented herself for treatment of a central incisor, which upon inquiry I found to have been diseased for a very long time. A fistulous opening at apex of the root, through labial surface of gum, had been discharging pus for five years. I cleansed the pulp chamber and canal by means of excavators and broaches and found the abscess cavity to contain a considerable amount of pus. I first washed out the cavity with carbolized water (5 per cent solution), subsequently treating with solution, carbolic acid, iodine, iodoform, etc., failing in all to get the desired results, but very readily yielding to aromatic sulphuric acid, which I used freely for several successive days. Previous to the use of the acid I washed the cavity thoroughly with 5 per cent solution carbolic acid. After healing of the fistula, and no further discharge of pus, I filled the canal with chloro-percha, the tooth with gold, and the results are to-day perfectly satisfactory.

My friend Dr. A. related to me a case which came under his treatment. He says: "In the case of Mr. M., who came for treatment of lower left incisor, which, upon examination, was found to be dead and a fistula from it opening on the chin. This I treated by injecting about one drachm of the acid, allowing it to run out the orifice of the sinus in the chin, simply following it with several injections of lukewarm water, which treatment was repeated every day for a week. The tooth and canal were then filled and the patient dismissed cured. Five years have passed but there has been no recurrence of the trouble."

In the application of this treatment we should use syringe and broaches made of non-corosive materials—such as gold, platinum or plate iridium—for in the use of instruments affected by acids we not only incur the risk of the corrosive agents upon the diseased surfaces, but also the danger of discoloration of the tooth structure.

The use of aromatic sulphuric acid has been objected to by some of our "shining lights" for the reason that if it comes in contact with the clothing or napkins it destroys them. This is true, but it seems to be a very trifling objection when the application of a little ammonia will overcome the action of the acid. But the free use of absorbent cotton to prevent the acid coming in contact with the clothing or napkins I find a very simple means of meeting the objection.

I leave this subject with you for your consideration. If what I have said shall be of the least benefit to the dentist or his patient then my efforts have been rewarded.

REPORTS OF SOCIETY MEETINGS.

MIDWINTER FAIR DENTAL CONGRESS.

DISCUSSION

Of Dr. A. C. Hart's paper, entitled "Periodonteal and Endodonteal Tumors; their Treatment, Pathology and Cure," and Dr. J. M. Davy's paper, entitled "The Aromatic Sulphuric Acid Treatment of Abscesses," as published on pages 451 and 464 of the current number.

Dr. Asay.—Mr. President, the two papers which have been read seem to me to be somewhat divergent. The first one, read by Dr. Davy, appears to be upon the treatment of alveolar abscess entirely, while the other relates more to pyorrhea and to periodonteal tumors. We understand an abscess—at least they did in my days when I was at college—to be a circumscribed cavity containing pus. Pyorrhea alveolaris is something entirely different. But I shall discuss more particularly the first paper, as that is the one to which I am assigned. I have had, personally, considerable experience in the treatment of abscesses by the aromatic sulphuric acid. My attention was drawn to it particularly some six years ago, in a case of lower central incisor where there had been death of the pulp, and it is this case to which Dr. Davy alludes in his paper, and where there was a fistulous opening in the chin. The pulp had been previously devitalized and canal filled, the crown also filled and filling removed; then the filling had afterwards been taken out of the root and an attempt made to amputate the apex. The attempted amputation was a failure, the instrument having gone to the side of the root, instead of cutting it off. That is true in a great many of these attempts at amputating. Unless the anatomy of the parts is sufficiently understood, you are just as liable to go to the side of the apex as you are to get on to it. In this case pus had been oozing from the orifice for some two or three months. It was sent to me by a physician. There was not only trouble from the abscess, because it is a well-known fact that you cannot have pus traveling over a bone without more or less disintegration of the bone or caries, but also caries of the anterior maxilla along the whole track of the sinus. Ordinary medications were first tried, but would not serve the purpose. The application of the preparation of 1-2-3 seemed to be completely inert. The first step, as Dr. Davy tells you in his paper, is absolute and thorough cleanliness; get the parts thoroughly clear. In this case I had frequently washed it out. In my treatment I had washed it out with peroxide of hydrogen. I did not use any carbolic acid upon it at all. Mind you, this treatment that I am now about to relate occurred about a month after I had had the care of the case, and had exhausted every other remedy. I then took my syringe and down through the pulp canal of the tooth, clear down, I threw in a drachm of aromatic sulphuric acid and let it run out of the fistulous opening in the chin on the rubber apron I had spread over the patient. To my surprise, in a day afterwards it looked so much better and pus discharge so much diminished that I continued the treatment for three or four successive days until the whole track was healed up and the orifice closed. Ten days after that I filled the tooth, and to this day it remains in as good condition as I ever saw a dead tooth in my life. So much for that case.

Now, there have been other cases presented to me of the same nature, and I have finally abandoned the 1-2-3 preparation, the iodoform and eucalyptol, and come right down to the old aromatic sulphuric acid, which we get almost from the dark ages. I wish Dr. Younger was here; I wanted to tell him that there are some things in antiquity that we have been discussing to-day as new. I believe that the aromatic sulphuric treatment will be a standard treatment of the future in many of these abscesses. I know of nothing that will be more effective and act more cleanly in every way. The mere fact that Dr. Abbott says that he does not use sulphuric acid because it will soil clothing is not important. I would rather soil a half dozen dresses and make the patient a present of a new one than to have an abscessed tooth regarded as incurable that is thus easily remedied. Now, it might be well to study the effects of it upon these tumors of which Dr. Hart has spoken. If you can pump aromatic sulphuric acid into one of these cases of hypertrophy (which is in fact what these tumors are) by a broach or syringe you will very soon get rid of the tumor. You will disintegrate it in almost every case. If you depend on your 1-2-3, oil of eucalyptus or iodoform, you will never get rid of it unless you pull the tooth out. That is just about the condition these things stand in. Now, there is another thing in regard to the subsequent treatment of the canals, after your abscess is cared for: always remember never to let the orifice close until you have got the track thoroughly healed. It is a rule in surgery to always let the granulation come from the inside to the outside—not from the outside to the inside; because, if you do, you will have to open it, or you will have a blind abscess, resulting perhaps in pyæmia or something of that nature.

I was about to say further in regard to the treatment of pulp canals, or rather in regard to the filling of them, after the abscess has been cured, it is some time since I used chloro-percha. I once thought that chloro-percha was a great thing, but I have given it up, thanks to Dr. Mann, whom I see here in the audience, and who posted me on that proposition. I am now using the Australia oil, known as Sander's Eucalyptol, with gutta-percha dissolved in it. The ordinary eucalyptus oil will not hold gutta-percha in solution, but I find that by using this you have never any shrinking from the walls of the pulp canal at all. When it is cold it is a solid mass. You have your antiseptic, and you have a perfect sealing of the apical foramen.

Dr. Van Orden.—I will only speak briefly on the paper. The first thing that attracted my attention was a radical change in nomenclature. The change is ingenious, but I don't think I can indorse it. The term "endodonteal" is appropriate, anatomically, perhaps, but in one class of tumors to which the author called attention their most prominent characteristic consists of superficiality, situated in open cavities with thin walls. We have not yet as a profession learned to use the word "pulp." We use indiscriminately the word "nerve" and "pulp." Until we have learned to make the proper use of that term I feel that we had better keep on the old ground.

As to the treatment of that class of cases I was very much surprised, in talking with a very prominent practitioner from the East, to learn that it was customary to give up these cases as hopless of cure, and to extract. Like Dr. Hart, I have not had that difficulty. It has seemed to me on the contrary, that the tissue of which fungus pulp is composed is of such a low degree of vitality that it only needs a little pressure to get rid of it. Doing away with a certain amount of sensitiveness, by the use of carbolic acid or of tri-chlor-acetic acid, which I think is one of our most satisfactory preparations there seems to be little difficulty in removing such a pulp. I have, within a month or so, treated without any difficulty the superior second molar. An interesting fact in connection with this class of tumors is that nature in this case is very kind. In this case so long as living tissue is present nature seems to aid us, and we do not find decay in the canals of the tooth having these low-grade fungus growths. Therefore, it is perhaps a mistake to look upon these cases as difficult of cure.

As to the opening of the abscess through the alveolar wall, it seems to me that the quicker the operation is performed, the more safe it is. In the first place, it is desirable in such a case to have a free opening. One of the difficulties we have to contend with is the closing of the gum over these openings. So I would recommend as an instrument the tubular knife, an opening, say, one-quarter of an inch or more, in width, of diameter, removing a piece of the gum. In that way we secure a clear opening and abundant opportunity to operate with a smaller point. It seems to me the opening should be made with a very small point, and this can be followed by enlarging.

In regard to immediate root-filling, I wish to say it does not seem necessary to practice that operation in many cases, when we know that pulp canals have been filled with cotton for a number of years. I removed one that had been in fourteen years, in the case of one of the patients from Dr. Flagg's practice, and the condition of that cotton was simply superb. I do not mean by that, that that is my method of practice, but it would be well before we ridicule a practice which has stood such a test as that to take into consideration these facts. When we consider that fact it seems to me going out of the way when we hesitate to leave cotton saturated with splendid preparations, such as cinnamon, carbolic acid, iodoform, etc., for a few days. I think it well to leave the canal saturated with proper medicaments for a certain number of hours at least, or even a few days.

Dr. E. Parmly Brown.—Mr. President, these two papers have pleased me. They have made two links of a certain chain, and with the missing link that I will supply I think that you will see a magnificent chain that will bind us together and make the treatment that they describe, dividing it and then uniting it again—something that will be worth something to us. We will first notice Dr. Davy's paper. Aromatic sulphuric acid treatment for all abscesses? Oh, no. What is to be accomplished with the aromatic sulphuric acid? It does not disinfect, nor sterilize; it simply dissolves any dead bone. If to treat a tooth is the desire, and there is no dead bone to dissolve, how may I best proceed? With the use of Calvert's carbolic acid No. 1, which I have used for twenty-five years Oil of cloves, may be good. But there is no carbolic acid I like as well as Calvert's No. 1. The oil of cinnamon is good, but hard to get pure. Oil of cassia is not reliable; one does not know where it comes from or what it is made of; it is uncertain. Do not use aromatic sulphuric acid except there be dead, or necrosed, bone to be dissolved. Remove the cause and nature will effect the cure.

Dr. Chance.—Mr. President, the discussion of these papers has pretty well covered most points, but I want to speak of that hypertrophied pulp in connection with immediate root-filling. Why not lift that out at once—remove such a pulp? It is comparatively painless. I do not think it needs two or three days' treatment; as I said, just scoop it right out and relieve the patient immediately, and you have accomplished the whole thing.

Dr. Merriman.—Mr. President, I have listened with great pleasure to the discussion of this interesting subject. I wish to speak of a case I had: A young man three years ago presented himself with the right superior, left first and second bicuspids, and first molar, with an abscess over each. He told me that they had been there for more than a year. The first bicuspid had been extracted in an interior town, but the dentist, being desirous of saving the tooth, persuaded the patient to allow him to replant it, which he did, after filling very poorly. The result was these abscesses were still there, and the gentleman still suffered. I removed the very imperfect amalgam filling, and I successfully removed the filling from the root, which was also very poorly introduced. I commenced to treat the teeth in the same manner that I had treated others, using iodoform, and syringing with warm water, sometimes using alcohol; I afterwards used peroxide of hydrogen a few days, then sealing the teeth within a week with iodoform, allowing that to remain three months. At the end of that time all three abscesses had healed, and a year and a half afterwards everything was in perfect condition.

Dr. Dunbar.—Mr. President, allow me to speak from where I am.

Dr. Lewis.—Won't you please come forward to the platform? The members would like to see your face.

Dr. Dunbar.—Thank you; they can see my face quite as well here. I was very much interested in the first paper. I want to say in defense of the gentleman's claim of aseptic properties for sulphuric acid that I think the 20 per cent solution, officinal sulphuric acid, will have an antiseptic effect. Sulphuric acid in 50 per cent solution has been recommended for cleansing root canals, and it is very effectively used if precautions are taken to limit its action. Sulphuric acid in varying strengths, even in mild solutions, has an antiseptic value—that is to say, it is a germ destroyer. There may be some value in aromatic sulphuric acid treatment. In my own practice I have very little use for it, preferring the plain acid on account of its freedom from precipitate. I have used the dilute officinal acid, as recently recommended in Dr. Callahan's paper,* and have found it very effective. I am unalterably opposed (referring to one point in the second paper), viz., to the use of the Gates-Glidden drill for root canals, and in particular those driven by the engine. It is a difficult matter to revolve the reamer and prevent the shaft from twisting or breaking. About fifty per cent of these reamers—and I think I am liberal in this statement—about fifty per cent are buried in root canals and left there. Go into any office where these drills are used and it is quite a common thing to see a lot of broken shafts, but very few points or perfect instruments, unless they be new ones.

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* Read before the Ohio State Dental Society. 1893.

One of the best things in my experience for the opening of root canals is the Donaldson cleanser, which is practically a reamer. They are so tempered in the middle sizes that there is very little danger of breaking. I am satisfied that no operator of experience will now attempt to drill a root canal, or be foolhardy enough to use any of the stock drills driven by engine-power. Of course root canals must be opened, and where it is necessary the use of dilute sulphuric acid (the officinal acid in 50 per cent solution, or a weaker solution if you like) will, in twenty-four hours' action upon the root canal, so soften the borders as to admit of ready access or the use of Donaldson's cleansers; but where the roots are so thin, with canals so fine that you cannot get into them, in my opinion they are better let alone. There are beautiful theories on paper, but it is utter folly to attempt in practice the opening of these very minute root canals. I am satisfied that the sulphuric acid, 50 per cent, put into the cavity will sterilize such canals if it does not open them enough to get in some antiseptic. I have used, and I prefer it to a number of other antiseptics, vaporized iodoform. Dr. Hart says he has not heard of any vaporized medicinal solution in the treatment of a root canal. There is an instrument which is now an old one that was invented for the purpose of vaporizing iodoform crystals by heat. These crystals when vaporized are driven into the root canal. I don't know whether the vapor gets into the tubuli or not, but it certainly goes into the root canal, the deposit of the drug completely lining the canal. After the opening is made you can treat such a canal with iodoform vapor, make a perfect sterilization, and then close it in any ordinary way. As far as leaving cotton in root canals is concerned, I am very much reminded of a remark made by my friend Dr. Chance, some years ago, in speaking on another subject, "I never have seen cotton kept for any length of time in a root canal that any one wanted a second sniff at; if he did he was a glutton."

Dr. E. Parmly Brown.—Dr. Dunbar is right up to a second point. The ancients had two ways of treating their dead: one was by embalming, the other was by cremation. You may put sulphuric acid into root canals, if you desire to cremate them so that there will be nothing left of them. If embalm them, you will have their mummies for years afterwards. Do you see any remains of the ancients that were cremated? Sulphuric acid accomplishes the same that fire does. It does not embalm or fill up the tubuli in that tooth structure.

Dr. Asay.—Mr. President, I desiré to take but a moment more. As I understood it, we were not discussing aromatic sulphuric acid for disease in the tooth at all. I referred more particularly to its effect in the destruction of caries, and necrosed bone around abscesses; and to this fact, in my opinion, either to the bone itself or to the roughness of the apex of the root, many abscesses are due. Experience also teaches me that aromatic sulphuric acid does exert a benign influence upon diseased soft tissue as exhibited in abscesses not resulting from such cause. Aromatic sulphuric acid does not cremate, but if it did it would be far preferable to cremate disease than to embalm it.

SAN FRANCISCO DENTAL CLUB.

THE San Francisco Dental Club held its regular weekly meeting at the club rooms, 235 Post street, Tuesday afternoon, September 11th, at 3:30 o'clock, and in the evening at 8 o'clock. Dr. W. J. Younger in the chair.

AFTERNOON SESSION OF CLINICS.

Dr. W. J. Younger presented a clinic on the treatment of pyorrhea alveolaris by instrumentation and medication. The teeth affected being the six anterior in the inferior jaw. The Doctor also explained and demonstrated his method of operating for retracted gums.

Dr. Cummings also presented a clinic upon pyorrhea alveolaris.

EVENING SESSION—DISCUSSION.

Dr. C. M. Carr.—Pyorrhea is a disease of itself, and one which most dentists believe incurable. The treatment adopted by Dr. Cummings in his clinic this afternoon is just as I see in Dr. Younger's office almost every day, and I see no reason why it should not be as successful. Dr. Cummings' manner of getting the tartar off clear to the apex of the roots is certainly very good.

Dr. Lundborg.—I admire the manner in which Dr. Cummings carried the injection of cocaine to the end of the root and did his work. For the past few months I have been using lysol as an antiseptic, with a more pleasing effect than carbolic acid. I find the use of an antiseptic solution to syringe out the chips and small particles a very satisfactory adjunct, and always practice it in after-treatment with lactic acid.

Dr. Hackett stated that he admired the manner of treatment, and especially the use of cocaine. He was positive that the success of the treatment depended largely, if not entirely, upon the absolute removal of all the calculus.

Dr. Younger said lactic acid had a great affinity for lime salts, hence was useful in doing away with calculus and in the treatment of necrosis; he, however, cautioned that its effect upon the teeth was deleterious to their structure, especially in those of poor organization, and added that it was well where the teeth were chalky to have a preparation of bicarbonate of soda ready to neutralize the acid where or when its presence was not required.

I would advise those who wish the cocaine solution I use for local anesthesia to go to my chemist for it, as he is familiar with its preparation, having been compounding it for me for years. In making the menstra the tinctures of opium and aconite are used, but the alcohol must be burned out because of its irritating property. The quantity of these agents is very minute, but seems effective in counteracting the tendency to collapse. Two to four ounces of the menstruum should be procured at a time. Keep a bottle of it always on hand, and some one-half drachm vials. When you are desirous of using any of the solution place five grains of the crystal cocaine in one of these half-drachm vials, and then *half fill* (15 mins.) with the menstruum. This gives the strength (33⅓ per cent) I use, but I would advise those who are not accustomed to the use of cocaine to *fill* (30 mins.) the half drachm vial; this will reduce the strength to about 16 per cent (– menstra 30 min., cocaine 5 grs. = 16⅔ per cent sol. cocaine). In drawing the liquid menstra from its bottle use a platinum-pointed syringe, first assuring yourself that it is perfectly clean. Sterilize by washing out with carbolized water, then afterwards draw some of the menstra through to wash out any foreign moisture that may remain in the syringe; then with this syringe you may safely withdraw a quantity of the menstra for use with the cocaine. The hypodermic should be subjected to the same treatment. See that the point is tightly screwed on, and that neither syringe nor point leaks. The cocaine solution (about 12 drops) should now be drawn into the hypodermic; the nut on the piston screwed to clear the 10-drop mark, and all air forced out of the syringe.

In extracting I inject from the gingival border, rarely using more than *five drops*, usually 1½ to 3½. Dr. Harding, whose solution was of less cocaine percentage than mine, was in the habit of injecting from 10 to 25 drops, and at a point of the gum just over the apex of the tooth. Nausea usually attended the injections made by Dr. Harding, but no such effect have I ever noticed from mine. I am careful to use but from one-thirtieth to one-fifteenth of a drop at a time.

The solution should not be used after it is three or four days old. It is safer to make it fresh as required. In its use see that it does not run into the mouth; have sufficient cotton close by to absorb the excess. More is required in an inflammatory region than in a normal, on account of the congested condition preventing its absorption.

Speaking of his treatment for pyorrhea, the Doctor said: In washing use any antisptic. I use 2½ per cent solution of carbolic acid, warming it to save the patient any discomfiture. The instruments which are laid out for use are always placed in this solution. Start in with a tooth and do not leave it until you are positively sure every particle of tartar is removed; cleanse thoroughly by forcing out any small particles by syringe washing that may remain.

Dr. C. M. Carr then presented each member of the club with an office right to his invention—Anchored, Adjustable and Removable Dentures; such privilege to go with each membership as long as said membership is kept in good standing.

Adjourned.

DENTAL CLUB MEETINGS OF TUESDAY, SEPTEMBER 18TH.

AFTERNOON SESSION.

Clinic No. 1, by Dr. S. E. Knowles; operation, gold filling in right superior cuspid, cavity comprising the cutting edge and extending lingually above to linguo-gingival ridge. Material: Rowan's Extra Pliable Decimal gold rolls and Williams' No. 4 foil.

Clinic No. 2, by J. E. Cummings; operation, treatment of pyorrhea alveolaris continued.

EVENING SESSION.

A general discussion of the formation of cavities preparatory to the insertion of gold fillings.

MEETINGS OF TUESDAY, SEPTEMBER 25TH.

AFTERNOON SESSION.

Clinic No. 1, by Dr. T. N. Iglehart; making dies. The Doctor showed that by tipping the molding flask the zinc, or other molten metal, could be more satisfactorily poured into the mold, driving the air before it, and without disturbing the perfection of the mold.

Clinic No. 2, by Dr. W. J. Younger; method of using ligatures in the correction of irregularities.

EVENING SESSION—DISCUSSION.

A vote of thanks was tendered Dr. C. M. Carr for his more than generous donation of the privileges of his invention to the members of the Dental Club.

On motion, Dr. Carr was made an honorary member of the club.

Dr. R. H. Cool.—I must compliment Dr. Iglehart on the beauty of the dies he made; they have what I am pleased to term a "satin finish." His method is certainly very original and clever.

Dr. Pague.—Was much pleased with Dr. Iglehart's method of pouring dies, and saw the philosophy of tipping the flask and pouring at the heel, thus driving all air before the metal and reducing to a minimum the danger of bubbling.

A general discussion of making dies followed.

Adjourned.

THE SAN FRANCISCO DENTAL ASSOCIATION.

THE San Francisco Dental Association held its regular monthly meeting at the rooms of the Dental Club, corner Post and Stockton streets, Monday evening, October 8th, with President C. L. Goddard in the chair.

The annual election was held, and the following are officers for the 1894–95 term:

President	**Dr. C. E. Post**	**14 Grant Avenue.**
Vice-President	**Dr. F. C. Pague**	**819 Market Street.**
Secretary	**Dr. G. N. Van Orden**	**14 Grant Avenue.**
Cor. Secretary	**Dr. H. G. Richards**	**931 Sutter Street.**
Treasurer	**Dr. W. A. Knowles**	**118 Grant Avenue.**
Librarian	**Dr. J. E. Cummings.**	

OAKLAND DENTAL CLUB.

AT a recent meeting of the Oakland Dental Club an election of officers was held resulting as follows:

President	**Dr. Russell H. Cool.**
Vice-President	**Dr. S. A. Hackett.**
Secretary	**Dr. H. F. Sullivan.**
Treasurer	**Dr. R. H. Allen.**

Executive Committee—**Drs. J. M. Dunn, Cecil Corwin, C. S. Lane.**

The last meeting was held at the office of Dr. C. S. Lane, and a paper was read by the Doctor, entitled "The Dentist: His Relations to His Patients and His Brother Practitioners," which will be published in the November number of this journal.

THE OREGON STATE DENTAL ASSOCIATION.

THE Oregon State Dental Association held its second annual meeting in the parlors of the Willamette Hotel, at Salem, October 3, 4 and 5, 1894.

The meetings were characterized by such evident earnestness of purpose and interested attention to business that they could not well be otherwise than profitable and instructive.

After the opening exercises, following the reports of the officers and committees, President S. J. Barber delivered the annual address, in which he referred to the advancement made in the dental profession on the Pacific Coast, and of the necessity of making such an improvement in the dental law as will place Oregon on a par with other States which have taken more advanced ground.

Papers, both able and interesting, were read on the following subjects: "Crowning Badly Decayed Roots," by Dr. W. C. Logan, Astoria; "Crown and Bridge-Work," by Dr. W. A. Cumming, Portland; "Orthodontia," by Dr. H. C. Miller, Portland; "Children's Teeth," by Dr. E. E. Cawood, Portland; "Articulation of Teeth, with Reference to the Bonwill Method," by Dr. O. C. Awbrey, Albany.

The discussions on all these topics were not only general and entertaining but illuminating as well.

Among the clinical operations may be mentioned one by Dr. S. J. Barber, Portland, on bleaching discolored teeth; one by Dr. L. E. Hibbard, Portland, demonstrating the use of the improved engine mallet, and one by Dr. W. A. Wise, Albina, on porcelain inlays. Other interesting clinics were arranged for, but, owing to a combination of circumstances, the patients for the operations failed to materialize.

The principal item of business before the Association, and one which gave rise to an enlivening discussion, was in relation to some proposed changes in the present dental law—to make it more practical in its effect.

One of the pleasant features of the occasion was the presence of Mayor Gatch at the second evening session, who, being introduced to the Association, made an appropriate speech in which he confessed to having received valuable information from the discussion of the evening's topic—that of children's teeth. A number of ladies also graced this occasion by their presence and interest.

By way of entertainment the members were invited to visit the State penitentiary and insane asylum, both institutions being situated just beyond the outskirts of the city. The invitation was accepted, and the afternoon being delightful, two hours were pleasantly spent in a visit to the unfortunate charges of the State.

The following officers were elected for the ensuing year:

President	Dr. W. C. Logan	Astoria.
Vice-President	Dr. J. C. Griffith	Salem.
Secretary	Dr. J. T. Tate	Portland.
Treasurer	Dr. Wm. Kœhler	Portland.

Executive Committee—Drs. W. C. Logan, J. C. Griffith, J. T. Tate (*ex-officio*); Dr. E. G. Clark, Portland ('95); Dr. T. C. Smith Jr., Salem ('95); Dr. W. V. Henderson, Eugene ('96); Dr. E. P. Mossman, Portland ('96); Dr. Mark Hayter, Dallas ('97); Dr. W. A. Cumming, Portland ('97).

Drs. S. J. Barber, John Welch and H. C. Miller were appointed delegates to the next meeting of the American Dental Association.

The Association then adjourned to meet in Astoria on the second Wednesday in August, 1895.

J. T. TATE, D.D.S., *Secretary*.

SELECTIONS.

A YEAR'S EXPERIENCE WITH THREE NEW REMEDIES

BY DR. I. N. CARR, TARBORO, N. C.

A YEAR ago I demonstrated before this society the use of three preparations that had but recently been brought to the attention of the profession by Dr. E. C. Kirk of Philadelphia, and by invitation of the President of the Virginia Association I attended their meeting at Charlottesville and did the same thing, and promised to present the results of my experience at a subsequent meeting. I now present for your consideration this report, which is a practical result of a fair test of their virtues, and which, I trust, will be of interest to you all.

The preparations are those of pyrozone, sodium peroxide, and Dr. Schrier's compound of sodium and potassium, in metallic form. Each of these has its place in my daily practice, and it requires only ordinary judgment to decide which to use in each case, or whether it is best to use one or more. As, for instance, if you are going to treat a tooth for a "blind abscess," adjust the rubber-dam and spray the cavity and canals with five per cent etherial pyrozone, allowing no instrument to enter the root. After discharge of pus ceases, spray the root with the three per cent aqueous solution, then use the sodium peroxide, or the sodium and potassium. If it should be a lower molar I prefer the sodium peroxide, because the roots of these teeth are so thin, and the canals so small that it is rather difficult to carry a broach loaded with the sodium and potassium to the ends of the roots; but with the other preparation I put a few drops of a 50 per cent solution into the cavity and by means of a fine broach work it clear down to the end of the root, and if a little passes beyond it does no harm. Now wash the roots with warm water that has first been boiled, dry with absorbent cotton and the hot-air syringe, and fill with what you can make the best root-filling of.

I do not hesitate to treat and fill such cases at one sitting, though, if the patient lives in town, I sometimes seal the root hermetically till the next day, particularly if there has been periosteal disturbance, but ordinarily I fill at one sitting. If the tooth is an upper front, after evacuating the abscess by the five per cent pyrozone I use the preparation of sodium and potassium of Dr. Schrier. This will destroy all germs of animal or vegetable life and leaves the root sweet and clean. But during the past six months I have used the sodium peroxide (known under the formula $N_2 O_2$) more than anything else; it is much cheaper, bleaches the teeth nicely, and does the work just as well.—[Items of Interest.

ACTION OF ARSENIOUS ACID ON TOOTH-PULPS.

Dr. W. D. Miller, of Berlin, records the following conclusions after a series of experiments:

First.—The rapidity and intensity of the action of arsenious acid depends, under certain circumstances, to a very considerable degree upon the substance or substances with which it is incorporated.

Second.—Where there is but a small point of exposure, and in particular where extensive calcification has taken place in the pulp, escharotics should be avoided, since the contraction of the tissue retards the absorption of the arsenic. This retardation is but slight where there is a broad surface of exposure. In stubborn cases where applications of the ordinary paste fail to effect the devitalization, a paste consisting of arsenious acid in oil of cloves, glycerine or salt solution should be employed, undiluted by any third constituent.

Third.—Thymol is worthy of a trial as a substitute for morphia on account of its anesthetic and antiseptic properties.

Fourth.—For devitalizing pulps of milk-teeth or remains of pulp-tissue in root-canals, arsenious acid, if employed at all, should be diluted by two to three parts of some other constituent (thymol, oxide of zinc, morphia, iodoform).

He further says: At the Dental Institute I have been making use of a paste having the following composition:

℞ Thymoli;
Acidi arsenicosi, āā x;
Ol. caryoph., q. s. ut ft. pasta. —[Cosmos.

IMPLANTATION OF DECALCIFIED TEETH.

Dr. Oscar Amoedo, Paris, says in his article, entitled as above, read before the Eleventh International Medical Congress, Rome, 1894: The pericementum disappears completely once the tooth has consolidated. The adhesion produced between the root and the alveolar wall is by a chemico-vital process. Decalcified teeth facilitate this work, and are more easily made and kept sterile.

Further the Doctor says: For the purpose of facilitating this chemico-vital process, caused by the uniting of the tooth I decalcify with chlorhydric acid the coat of cementum half a millimeter in depth before implanting the root. The process of decalcifying is as follows: Boil the tooth in mercury bichloride, then dip during three or four hours in a solution of chlorhydric acid of ten per cent, and probe it from time to time with a sterilized knife to judge the thickness of the decalcification. As soon as the knife penetrates half a millimeter wash the roots and neutralize with ammonia.—[L'Odontalogie.

DENTAL EXCERPTS AND FORMULAS.

Amalgam Condemned.—Dr. J. Y. Crawford condemns the use of amalgam *in toto*; allows it no place in the teeth under any circumstances. He says: What is a decayed tooth? A local manifestation of disease. It is just as important as any other disease. Would a physician compromise on a remedy for a disease because it is cheap? It costs me eight to ten dollars in cash daily to espouse the cause I do; I could make thirty dollars with amalgam as easily as twenty with gold. I am a poor man, but I would rather die a pauper than have a bank account due to the use of amalgam. Among the charges made against amalgam as a material for filling decayed teeth, beside the fact that it does not save them, he believes it causes pulp stones and other diseases. He would recommend tin instead, or tin and gold, or any of the plastics.—[Southern Dent. Jour. and Luminary.

C. N. PEIRCE ON AN OBTUNDANT FOR SENSITIVE DENTINE.—As a satisfactory "obtundent" for sensitive dentine is very desirable, I send you herein a formula which has responded more frequently in desired results than any other combination I have used, not excepting my experiments with the secret nostrums sold for the purpose. While this in preparation costs less than one-fourth of those, I have the satisfaction of knowing the constituents, and would advise those who desire an obtundant for this purpose to try this combination before purchasing any secret product.

℞	Cocaine	gr. v.
	Carbolic acid	grs. xx.
	Chloroform	drms. ss.
	Muriatic Acid	m. x.
	Alcohol	drms. ii.

—[International.

HOW TO USE SANDPAPER DISKS.—Cover them with vaseline; they will not break up so rapidly; their cutting power will be increased; they will never catch in the dam; they are made more flexible and can be pressed into all depressions and made to cut at any desired point. The fine particles of gold removed in contouring fillings will accumulate in the oiled disks with surprising results when turned over to the refiner.—[C. N. Johnson.

TO START A LARGE GOLD-FILLING.—With sandarac varnish hold in place in the bottom of the cavity a large pellet of gold, into which work strips of gold, relying on this only for a start, but not as a substitute for proper anchorage.—[W. G. Browne, Atlanta, Ga.

IMMEDIATE ROOT-FILLING.—Cleanse the canal thoroughly and fill the canal with yellow-wax, using a root-drier to melt the wax in the canal and force a lead-point home into the melted wax.—[R. R. Freeman, Nashville, Tenn.

OBTUNDANT.—At the First District Dental Society of New York Dr. Genese treated and excavated a lower first molar, capping and filling it at the same time. The cavity was large, and the tooth hypersensitive. Dr. Genese demonstrated the obtundant effect in this case of his preparation of carbolate of cocaine, the formula of which is:

℞ Cocaine........................4 per cent,
Carb. acid....................50 per cent,
Benzoin, gum....... ....50 per cent;

by the aid of which he excavated the tooth painlessly.—[Cosmos.

CEMENT UNDER METAL FILLINGS.—The less metal there is inserted in a tooth the better will be the result. Practically replace all the dentine with cement, following its original outlines and enamel with metal. The oxychloride of zinc produces a beneficial effect on tooth-structure not to be observed as following on the use of oxyphosphate. The oxychloride is, therefore, always used in this lining process, using gold or amalgam as a reserve only in all deep cavities.—[C. Edmund Kells, Jr.

A HUNGARIAN chemist has discovered that the nitrate of cobalt is a most efficacious antidote to poisoning by cyanide of potassium or prussic acid. He tried the antidote first on animals and afterward on forty living persons who had been accidentally poisoned with prussic acid. In not a single case did the antidote prove a failure.

AN EXCEEDINGLY MALLEABLE ALLOY.—Sixteen parts copper, one part zinc, seven parts platinum. Cover the platinum first with borax, then with powdered charcoal and melt; then add zinc. Exceedingly malleable; can be drawn into the finest wire and never tarnishes.—[Scientific American.

GOLD IN DENTISTRY.—A French statistician, Mennier, estimates the consumption of gold for purposes of dentistry to amount annually in the United States to 1800 lbs. Mennier declares that a century hence American cemeteries will contain more gold than now exists in France.

LOCAL ANESTHETIC FOR PAINLESS EXTRACTION OF TEETH.—Dr. J. Alberto del Solar, Santiago, Chile, has furnished us for publication the following formula for his local anesthetic to be used in his painless extraction of teeth:

℞ Alcohol, 98 per cent	f. oz. ij.
Chloroform	f. oz. iv.
Ether, sulf	f. oz. iss.
Camphor	oz. j.

M.: The solution thus made is to be applied to the gum for one minute, both buccally and lingually. It is not intended for hypodermic use, and to secure the best result the gum should be carefully dried before making the application.

HAND COSMETIC.—The following is recommended for those who desire soft, white hands:

℞ Lanolin	20 parts.
Glycerine	20 parts.
Borate of Soda	10 parts.
Oil of Eucalyptus	2 parts.
Essence of Bitter Almonds	25 drops.

M. Sig.: Rub hands with preparation and cover with gloves at night.—[L'Odontalogie.

IT seems to me good, reasonable and logical doctrine that we should refuse to fill roots immediately in all cases of septic condition. We should only choose those roots for immediate root-filling in which we are satisfied the condition is aseptic, and has been none other than aseptic.—[G. V. Black.

When we hear men say they fill all root-canals immediately, and have "perfect success" with them, we stand aghast; but when they tell us how they do it we recognize the same old Ananias.

I HAVE administered the following prescription in neuralgia of the fifth pair of nerves with excellent results:

℞ Codeine	gr. ij.
Phenacetine	
Quinine	āā. grs. xxx.

M. Fint. cap. No. 12.
Sig. One cap. every three or four hours until relieved.

—[D. E. Wiber, D.D.S., Washington, D. C.

CORRESPONDENCE.

DEATH FROM BLOOD-POISONING RESULTING FROM A DENTAL OPERATION.

A CASE of death, presumably from blood-poisoning resulting from a dental operation, was brought to my notice a few days ago by Professor Miller. He had received a letter from one of the provincial cities citing the following facts concerning the case:

"On Sunday afternoon, March 12, 1894, a young merchant came to my office for treatment. One week before he had been to a 'zahnkünstler'[*] and had a left superior, as well as a left inferior bicuspid tooth filled.

"The patient informed me that after having the teeth filled he had intense unbearable pains from the same, so he returned to the 'zahnkünstler' for the purpose of having his suffering alleviated. The 'zahnkünstler' gave the patient a prescription for tinct. iodii, with instruction to paint the gums surrounding the affected teeth. He received no relief from this, so came to consult me, as above stated. When he came into my hands the tissues surrounding the superior bicuspid were badly swollen, and the tooth itself very sensitive to touch. At the patient's request I extracted the upper bicuspid and the parts assumed a normal condition. The patient was not relieved of his suffering, however, for in a few days he returned with the tissues surrounding the lower tooth in a very bad condition, the face badly swollen and the tooth very sensitive to touch. I extracted the tooth and removed the filling, finding the nerve canal open, its contents decomposed and of a very offensive odor. The swelling remained in spite of careful antiseptic treatment of the mouth and application of poultices externally. Lastly a surgical operation was performed to give relief, but the patient died in a very short while."

Berlin. GEORGE MARTIN, D.D.S., D.M.D.

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[*] NOTE—In 1869 a law was enacted in Germany which in effect entitled any one to practice medicine, or any specialty of medicine, without any qualification whatever. While this law did not affect the practice of medicine, it had a marked effect upon the practice of dentistry. A class of "tooth artists" appeared, who entered upon the practice of dentistry from the standpoint of the mechanic. At the present time there are many practitioners who have no qualification except such chance information as has been picked up. Some are skillful in mechanical directions, and compete successfully with men who have graduated from dental institutions. It is only within recent years that dental students received instruction in practical dentistry. Formerly they were launched upon the world utterly unprepared, and therefore the "tooth mechanics" were able to compete with them. This has had the effect of stimulating the dentists to better qualify themselves for intelligent practice.

EDITORIAL.

THE LEEK CASE.

AT a meeting of the State Board of Dental Examiners held September 6th, J. J. Leek applied for a certificate from that body licensing him to practice dentistry in the State of California, by virtue of his having been in practice on and prior to March 12, 1885.

The Board rejected the application on the ground that the applicant was in the employ of Gen. T. H. Williams as an orchard-man on the Union Island farm at the time.

Leek caused a writ of mandamus to be served on each and every member of the Board, ordering them to appear before Judge Seawell and show cause for refusing to grant the desired license.

The Board appeared in court, represented by the Deputy Attorney-General, and produced an abundance of witnesses showing that Leek was not practicing dentistry at the time required by law. A ruling of the Board makes a certain form of affidavit necessary for application for registration, and this affidavit must be signed and sworn to by two legally qualified physicians, or one physician and one dentist. It is necessary that these should swear that the applicant was to their personal knowledge practicing dentistry *on* the 12th day of March, 1885. Leek had procured such indorsement, but in the trial one affiant testified that he had signed the affidavit believing it to be a petition of Leek's to the Board, and further that he had no knowledge of Leek having been in practice at that time.

The attorney for the plaintiff asked for further time in which to procure other witnesses, and several days were granted, but when the matter came up again for the attention of the Court Leek's attorney asked for a dismissal of the case, claiming to have discovered some decision against a similar case in New Hampshire. The abandonment of the case by Leek prevented the Board from securing the decision of the Court, but no doubts were expressed to what the judge would have decided.

Now Leek intends to question the constitutionality of the statute enacted in 1885, by causing the arrest of some illegal practitioner who is violating the law, and then have the matter carried to the appellate court on a writ of habeas corpus—so he says—and toward such an action he has caused the following to be sent to all whom he supposes to be violators of the dental act:

> SAN FRANCISCO, Oct. 14, 1894.
>
> DR. —— ——
>
> *Dear Sir:* I am informed that you, like myself, have no license to practice dentistry in California. There are now arrangements being made to arrest all dentists working for themselves or others in California, so as to make a test case. The penalty is a fine for practicing without a license. Some of those who will refuse to assist will be arrested for a test case, and Mr. Collins, my attorney, will carry the case into all the courts, if necessary, to make the law void. The Supreme Court of New Hampshire declared the law null and void. The Court here dismissed* my case on the new Hampshire showing.
>
> Please sign your name to the printed agreement included in this letter; also your correct address, and the amount you are willing to pay as per agreement when the law is broken. Then all those not now licensed can come in and be registered when a new law comes into effect. It may be one to six months before the law is declared void. The Dental Board claims that we must prove that we were practicing on March 12th, 1885, and that physicians cannot fill teeth nor scale teeth.
>
> Write or come to see me at once, for all the unlicensed dentists are combining.
>
> DR. J. J. LEEK,
> Room 12, No. 1 Fifth St.

The printed agreement inclosed with the letter reads:

> WE, the undersigned, do hereby agree that in the event and on the conditions that George D. Collins, attorney-at-law, secures a decision of the Superior Court, the Supreme Court of California, or the Supreme Court of the United States, adjudging unconstitutional and void the Act of the Legislature of the State of California, approved March 12th, 1885, and entitled "An Act to insure the better education of practitioners of dental surgery and to regulate the practice of dentistry in the State of California," we will pay to said Collins, within ten days thereafter, the sum set opposite our respective names, said sum to be in full compensation for his services.
>
> NAME. ADDRESS. AMOUNT.

This is the unique means by which an attorney—such as Leek can employ(?) to defend his cases—may appeal to the

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*NOTE.—A slight inaccuracy on the part of "Dr." Leek, who posed as the *plaintiff*.

unlicensed for business. Times are surely hard with some lawyers, even though such boastingly claim to have refused a proffered nomination for District Attorney. Of course, all the unlicensed will take advantage of the scheme, the law will be declared unconstitutional, and the Board, like Othello, will have lost its occupation.

We feel that we can voice the profession in saying "go ahead" to Mr. Leek and his attorney; the sooner such proceedings are inaugurated the better. As for the Board, we believe its members will be glad to learn whether or not it has any legal status. *Our* only fear is that Mr. Collins, who so ably defended Leek in his numerous cases against his brother in their family quarrels ventilated in court, and against the State in the mysterious demise of Miss Alice Aldersley, who was found dead in J. J. Leek's dental office, will not be able to see enough ahead in the case to prosecute it as thoroughly as we would like.

In the event, however, of the matter coming up, the San Francisco Dental Association and other organizations will have an opportunity to take a hand and do what they should have done long before—prosecute every unlicensed dentist in the city of San Francisco.

DENTAL EXAMINERS' REPORT.

THE Ninth and Tenth Annual Reports of the State Board of Dental Examiners have been published jointly and are ready for distribution. Some months ago we published a letter from Governor Markham explaining that by an act of the Legislature the reports of all State Boards, etc., will hereafter be published biennially instead of annually. This will account for the delayed Report for 1893.

During the years 1893 and 1894 the Secretary was instructed to thoroughly expert the Register, on account of numerous changes of residence made by the persons registered, and edit the Annual Report in accordance with the result of his work. A "data card" was sent to the address of every registered practitioner in the State, asking for sufficient information to accomplish this task. Many failed to respond to this request, and if inaccuracies appear in the report it is directly attributable to that cause.

To further the desire of the Board to place the profession in California in the best possible condition no pains were spared in securing all accessible information, and therewith is given as accurately as possible the name, address, qualification, date of certificate, number of certificate, county recorded in, and date of recording, in an alphabetical list; also a list according to counties, and a list of deceased practitioners.

In accordance with the resolution adopted by the Board August 13, 1891.

> *Resolved*, That the California State Board of Dental Examiners publish a list of the unlicensed practitioners of said State in their annual report to the Governor of the State each year,

the Board has caused to be published in its report a list of all the unlicensed practitioners of the State of California it has officially become cognizant of; and for the information of the public it is explained that *no fee can be collected by any unlicensed practitioner, by virtue of the fact that he is not a legally qualified dentist.*

Recognizing that no such task as was undertaken could be perfectly accomplished in the length of time allowed, and that many inaccuraces and mistakes are liable to occur in the report, on account of the refusal of many to reply to the request of the Secretary, and the natural meagerness of all such needed information, the Board will be especially grateful to any one who will mail to its Secretary information correcting errors in the same.

CORRECTION.—On page 8 of the Report read the signature of the President, W. J. Younger, M.D., omitting the degree "D.D.S." Evidently the work of a respectful typo, escaping the eye of the proof-reader.

KALEIDOSCOPIC.

A Simple Test for Cocaine in Local Anæsthetics.—To a solution of cocaine add a few drops of ferric chloride; then a few drops of stannous chloride; a white curdy precipitate very much resembling the chloride of silver results.

In applying the test dilute the solution with an equal bulk of water. This separates the camphor, menthol, or other substances soluble only in strong alcohol. If such a precipitate occurs it should be removed by filtration, and the filtrate boiled to remove excess of alcohol.

The precipitate is easily soluble in dilute oxalic or sulphurous acids.

In using the test the following facts should be remembered:

Strong alcohol will prevent the formation of the precipitate; so while the officinal tincture of chloride of iron can be used, it should be diluted with about four times its bulk of water.

Cinchonidine and morphine can be made to give similar precipitates, but *not* under the conditions of the test, as they require a large amount of stannous chloride solution.—[From H. Carlton Smith, in International Dental Journal.

NOTICES.

Pamphlets Received.

The Effects of Exercise Upon the Teeth. By A. Hugh Hipple, L.D.S., D.D.S., Omaha. Reprint from the New York Medical Journal, June 16, 1894.

The writer claims a rapid and serious deterioration of these organs. "The remedy," he says, "is in the hands of the parents," and recommends "dental calisthenics" to exercise the jaws and contiguous tissues.

The Philosophy of Eating and Drinking from a Medical Standpoint, with Personal Experience. By W. G. A. Bonwill, D.D.S. As read before the Odontological Society of Pennsylvania, Philadelphia, 1889.

What Has Dentistry to Demonstrate Against the Hypothesis of Organic Evolution? By W. G. A. Bonwill, D.D.S. Chicago: Knight, Leonard & Co., 1894.

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ORIGINAL COMMUNICATIONS.

DUTY AND PROGRESS.

BY F. H. METCALF, D.D.S., SACRAMENTO, CAL.

[Read before the Midwinter Fair Dental Congress.]

HANNAH MORE says: "The world is not required so much to be informed as to be reminded." Upon the strength of that statement I have written this paper, which pertains to things we all know, but of which we should be constantly reminded.

The first duty we owe our patients, the profession and ourselves is care of our health. As professional men, as progressive men, our physical condition should be perfect. A cool head, a steady hand and delicate touch accompany a vigorous body. Nearly all the ills human flesh is heir to can be traced directly or indirectly to some indiscretion on our part, and violation of the laws of nature. There is much in heredity, yet the titman often makes the largest hog. Physical culture will work wonders, when pills, purges and plasters fail. Half our ills are imaginary, brought about by weak nerves and weaker digestive organs.

I would have physical culture taught in every school in the land, commencing in the kindergarten and continuing without interruption until school days are over. Then we are supposed to have reached the age when we can judge for ourselves what exercises we require, according to our position and surroundings. Many a constitution is ruined before we are capable of

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NOTE.—The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in this country.

reasoning for ourselves by indulgent parents and namby-pamby nurses. Let a boy be a boy natural, by which I mean when he is in the country let him go barefooted, swimming, hunting; keep him from bad companions, but encourage him in all boyish sports. Whittier expresses all this in his poem, "The Barefoot Boy":

Blessings on thee, little man,
Barefoot boy, with cheek of tan!
With thy turned-up pantaloons,
And thy merry whistled tunes.
* * * * *
From my heart I give thee joy:
I was once a barefoot boy.

Who can tell quicker than the dentist how a child has been brought up. My sympathy goes out to children reared in large cities; more particularly if they have been raised pets. Little do they know of what constitutes childhood's happy days. What would become of the population of our cities were they not recruited from the country? cities would die out were they not reinforced from the fields. Most of America's great men were country-bred; they have the bodily vigor to withstand the mental strain incident to city and public life. A gentleman traveling in Scotland, noticing her barren soil, said to one of her sturdy sons: "What do you raise here?" "Men," was the prompt reply. Many a man owes his success in life to a porridge diet when a boy. We cannot all be born or reared in the country, or be like the boy whose mother insisted that her son had worked on the farm ever since he was born. She was asked what he had done the first year? "Milked," was the reply. The country lad develops a vigorous frame by manual labor in the fields. The city lad must do this by artificial means to bring about the same results.

The best place to have an appliance for the development of the body is at home. At the gymnasiums exercise is often carried to extremes, and the training is not regular. Many men who have an active, well-developed brain lack physical development.

It would be a step in the way of progress to compel all students in our dental colleges to pass a physical examination, or, perhaps better, to teach physical culture in the colleges. The body and mind should be developed in unison; they should be viewed as the two well-fitting halves of the perfect whole to sustain each other—each worthy of the greatest care and devotion. The training of mind and body should be the growing time; but, that we may not retrograde, we must continue to train our mind through life; likewise our body. If your body is healthy, disease will seldom break in upon you; few diseases are contagious to a person physically strong, and it does not follow that because one child has the measles, mumps or scarlet fever that all children must have them, no more than that all young men must sow wild oats. Laziness is often mistaken for malaria, and I have known young men to imagine they had religion which time proved to be dyspepsia.

My object in writing this paper is to jog the memory of the busy practitioner and present a few suggestions and old precepts, more particularly to the young men of the profession, whom I hope have many years of successful practice before them. How many dentists are there present who live a life conducive to longevity? Health overreaches everything in importance, yet how few dentists enjoy it, and how few strive to retain or preserve it through the proper channels.

I wish right here to speak of the benefits and importance of the cold sponge bath. We should go about it, however in the proper way, and, when once accustomed to it, we find it a luxury instead of a task. Acquire the habit in warm weather, then, as the cold weather comes on, the change in the temperature of the water is not so noticeable. My method is this: When you awake in the morning, and it is time to get up, do it as though you intended to remain up all day; throw off your nightshirt, then rub your body and limbs briskly with your bare hands; no patent brushes are needed; at the same time inhale and exhale long and deeply; three minutes of this will do. By this time you will have your blood in good circulation. Now take your cold bath, and you will have no chill. Rub yourself briskly with coarse towels; now five minutes' work with clubs, dumbbells, Dowd's exerciser, or any of the numerous appliances for that purpose; dress and in half an hour take breakfast. Your bath and all have not consumed above fifteen minutes. You cannot spend fifteen minutes a day with better profit, and you can eat a breakfast that is a breakfast—and what is more necessary to fortify ourselves for the duties of the day? Opinions change, but a good breakfast remains close to sound judgment.

Aside from building up the system, the cold bath is a sure preventive of colds. The better our physical condition (all things being equal) the more vigor we put into our work, we can stand longer hours at the chair without fatigue; our nerves become stronger, and we are enabled to throw off the petty annoyances of the day. And let me say right here to the operative dentists that a suspensory bandage should always be worn during warm weather; it will rest you, and you will derive much benefit from it. A light luncheon should be taken at the middle of the day and at a regular hour; after luncheon a short nap, say of ten minutes, fits you for the duties of the afternoon. At night, a moderate dinner. If we feel exhausted at the end of the day, it is more often from our nerves than from our bodies, and a brisk walk, drive or, what is better, a ride on a bicycle will relieve this mental fatigue by enlarging the respirations; it quickens the circulation and aids digestion, thereby quiets the excited nerves and brain. Health, unless the body is already broken by disease, is within the reach of us all; it is never too late to begin, and half an hour a day spent in physical culture will do wonders in the course of a year.

Exercise and fresh air are the two best physicians of man; give pills and patent nostrums a wide berth. Last year I wrote of the advantages of training ourselves to become ambidextrous. I repeat again, there is no talent God has given us that we can cultivate to better advantage. You can operate longer hours with less fatigue to yourself, you develop the muscles of the back and loins alike, being able to operate standing on either side of the chair. You are not obliged to breathe in your patient's face, nor have them breathe in yours. I firmly believe it should be taught in the physical development of children; it would bring about a more symmetrical development of the body, and there are no disadvantages arising from it.

My paper was criticised by one of the medical profession in this city, who argues that, in case the hands and arms were developed alike, we would be liable to hesitate which to use in case of danger; that it would require a mental operation to decide which arm to use. Well, it might for some people, but such an argument seems simple in its crudity. Corbett and most athletes who are particularly ambidextrous, as far as self-defense is concerned, don't seem to hesitate, but do seem to keep the other fellow guessing.

While writing this paper I saw a man, born without arms or hands, who performed most of the duties devolving on those members with his feet and toes, and did them well, besides playing the violin with other accomplishments. Necessity is the mother of invention. Few things are impossible to industry and perseverance. I have not the time to speak of the many appliances for the development of the body. By means of charts they show how all the superficial muscles of the human body may be developed.

The dentist should pay especial attention to the chest development, as his position at the chair tends to contract it.

I shall speak briefly of wealth, as I consider it of the least importance, but we should all develop enough thrift to prepare for old age. It is a lamentable fact that most dentists die poor; they remain in the harness to the end. What is the reason for this? First, many want to keep pace with people who have dollars to their cents; secondly, they forget that they cannot control a lucrative practice always; thirdly, they want to get rich at one stroke. The weak spot is in mines in this Western country. In the East the gullible dentist loans his money to some Western investment company at a high rate of interest and bogus security; never thinks of the principal until it has been absorbed by these parasites.

Be thrifty until you have a working capital; be satisfied with moderate interest as long as the security is good; acquire an income to add to the direct product of your labor at the chair. Most people who have acquired great wealth have gotten their start by the most rigid economy. Alexander T. Stewart said the first thousand he saved was by far the hardest. Dentists are not financiers; it is what other people may say that keeps a good man's nose on the grindstone. We should never allow ourselves to be pinched financially; no matter what the income, save a little. "Pay as you go, and save enough to come back," is a precept worth remembering. Vast wealth is not to be desired, for he who has it wants more, and is thereby a beggar, but it is a duty we owe our rising profession to provide for old age. Let us profit by the misfortune of others older than ourselves; experience is a dear teacher, but fools will have no other. We must discipline ourselves in order to become well-to-do. As a profession this is a step toward progress, and progress is a step toward perfection. Prosperity I speak of as including everything that is conducive to our success and happiness; it is often the little things in life that determine our success or failure, or perhaps our degree of success.

It is all-important that we keep abreast with the times; no appliance or instrument is good enough if there is better in the market. This you owe to your patient, the profession and yourself. Don't let your surroundings curb your ambition; don't stop because your office is as good as A.'s or B.'s but set the pace yourself. Economize somewhere else; never in your office; make it attractive to yourself, and it will be so to others. Cultivate those older in the profession who have been successful; rest assured they have ability as well as *sabe*, and you can pay them no higher compliment.

"Trifles make perfection, but perfection is no trifle." Perfection is hardly attainable, but those who aim at it come nearer the mark than those who from indolence or ignorance leave to chance the work of skill. Rise superior to your surroundings; say to yourself, "though the point of perfection be unattainable, my care, my endeavors, by best efforts shall not be wanting to get as near it as I can." Obstacles to surmount are often blessings in disguise.

Epictetus says: "God, like a trainer of athletes, has matched you against a rough young man that later you may become an Olympic conqueror." Don't complain or hold post-mortems over your ill-luck. Of all things people, whose friendship or opinion are worth anything, pray to be delivered from the grumbler. It is a law of nature and of God that the superior shall always overpower the inferior. Care strengthens our skill, and where there is skill there is confidence. We need a little vanity, but must beware of conceit. It is impossible for a man to learn that which he thinks he already knows. Aside from skill, there are other things quite as necessary to our success. Under all circumstances keep your temper with patients; there are ways of being rid of disagreeable ones without losing our dignity or their respect, which is far better than their enmity. Our manners have more to do with our success than most of us would be willing to admit.

Emerson says: "Manners are the happy ways of doing things; if they are superficial, so are the dewdrops that give such depth to the morning meadows." Lord Chesterfield, in letters to his son, laid great stress upon the cultivation of the graces. He said: "I would not only have you the best educated man in England, but the best bred." In another letter he says: "Take one man with a moderate degree of knowledge, but with pleasing ways and prepossessing manners—in fact, adorned with all the lesser talents—and take another man with profound knowledge, but without the above-mentioned advantage, the former will not only get the better of the latter, but there will be no sort of comparison."

To do as you would be done by is the plain, undisputed rule of morality and justice. This requires common sense (which by the way is not so common). We should be careful of our dress; our linen should be spotless; people are more observing than we think; a soiled collar or hands may cost you many patients. A reputation of being careless travels quite as fast as one for being neat, and is closer to dollars and cents than some imagine. A man who is careless in his dress at twenty will be a sloven at forty. We can dress well without being extravagant; neatly without being foppish; water is plentiful and we can keep ourselves clean. Don't rely on perfumes for an individual odor; the best smell is no smell at all. Keep your own teeth immaculate. How many dentists mouths would bear a rigid inspection? Is it not rather inconsistent to preach to people on the care of their teeth when we need to take our own medicine quite as badly—in short, to practice what we preach?

Gentleness of manner with firmness of mind are traits to be cultivated. The man who despairs of pleasing will never please. Patients lose confidence in a timid man; we are valued at the price we place on ourselves, if it is not too exorbitant. A cool, intrepid assurance, with seeming modesty, takes with all. We have all classes to deal with, and it requires tact to discriminate. A dentist must be something of a diplomat, respectful to our superiors without being servile, agreeable to our equals, and not arrogant or overbearing to our inferiors. All are entitled to every mark of respect and good breeding. An injury may be forgiven, an insult never.

Human nature is alike the world over, and education more than nature is the cause of that great difference we see in the characters of men. We must analyze and examine our own conduct. I read a unique codicil to a will once: the heir was earnestly exhorted to practice the pious exercise of meditating an hour a day on his own nothingness. What a discipline it would be at the end of each day to review our actions carefully; how important to the training of the mind. No man is obliged to learn or know everything; it is not possible, yet we, as dentists, as professional men, are under some obligations to improve our understanding as far as possible. Skill we must have; yet our success depends on our good judgment, and therefore the cultivation of the mind has everything to do with not only our success, but happiness. This must be done, in a great measure, through books, which give us the brightest thoughts, the precepts, good judgment and right reasoning of the living and the dead. By study we reap the results of their years of toil, but study we must. "Drudgery is as necessary to call out the treasures of the mind as harrowing and planting those of the soil."

Taste for choice literature is in a measure cultivated, and with that taste once aroused nothing will ever give you more keen enjoyment than good books; they are food, drink and companionship for the mind. We make the thoughts of the best authors our own. Channing says: "Books give to all who faithfully use them the spiritual presence of the best and greatest of our race."

It must be our end and aim to improve the understanding and acquire the skill of good reasoning, as far as our station and capacity will admit. We must deeply possess our mind with the vast importance of good judgment and the inestimable advantages of sound reasoning. If we but review the instances of our own misconduct in life how many follies and sorrows had we escaped if from our earliest youth we had been capable to judge of persons, times and things. It should awaken us to the thought that it is never too late to mend; it will make us more considerate of the weaknesses, frailties and mistakes of those we are brought in contact with. Think of the numberless variety of questions there are belonging to the particular science to which we are devoting our lives, and how few of them we can answer to an undisputed certainty. We must be careful not to exalt ourselves because of any superficial acquirements we may possess, for in so doing we are building a most impassable barrier against improvement. It is meditation and studious thought on what we read that gives us good sense, even to the best genius, which is intellect constructive.

A life of learning cannot be a life of ease, yet it should be a life of pleasure. No man should adopt a profession unless he is resolved to study as long as he continues to practice. The good of the profession demands meditation and study. Carry the nature and sentiments of others into practice and they will become our property; there is no law against larceny of this kind, acquired by observation, conversation and reading. It stimulates us to penetrate deeper in the knowledge of our art, and it is in this way we shall penetrate further than any generation before.

Devotion to our chosen profession should contribute largely to our happiness. There is nothing talked of more and less understood than what constitutes a happy life; not one in a thousand knows wherein that happiness exists. The true felicity of life is to be free from perturbation; to be content with our lot; to understand our duties towards God and man; to enjoy the present without any anxious dependence on the future. We must envy no one; be satisfied with our best efforts and what we may hope to acquire within reason. The blessings of mankind are within us and within our grasp; yet, in our reach for more, we fail to see this and fall foul of the happiness we are searching for.

We need tranquility: a certain equality of mind which no condition of fortune can either exalt or depress. He that judges aright and perseveres in it enjoys a perpetual calm; he looks at things in their true light; he squares his life according to reason; it must be a sound mind as well as a sound body to constitute a happy man; there must be constancy and consistency in all things; there is no cheerfulness like the resolution of a brave mind who has fortune under his feet. To be happy we must have a thorough knowledge of what we ought to do, and conform the will to that knowledge; be content with things, hopeful and at hand, but in plenty fortify ourselves against want. You must not trust to good fortune nor submit to bad. There is little room for grief, if our mind is tinctured with philosophy. "Happy is the man who eats for hunger, drinks for thirst, stands upon his legs by reason, not by example, provides for comfort and necessity—not ostentation and pomp."

In conclusion, a few words nearer home: Progress should be the watchword of every man who has the good of the profession at heart. Every man who has made a success of any specialty deserves at least open recognition and the thanks of the profession entire. That some men should meet with a greater degree of success in any particular branch of dentistry is not strange; it is usually found on investigation that he has excelled by dint of patience, perseverance and hard work. Every progressive man's theory is entitled to respect, and he who gives his time and talent freely to the profession is entitled to much credit. Jealousy is the product of little minds: "He only advances in life whose heart is getting softer, whose blood warmer, whose brain quicker."

The weakest among us may have a gift which is peculiar to himself and which, freely given, will benefit the profession. Such help as we can give each other in this world is a duty we owe each other, and the man who perceives a capacity or superiority in another and refuses to recognize it is not only the withholder of a kindness but the committer of an injury. Let us not forget in the march of progress that every revolution was first a thught in one man's mind; every reform was once a private opinion. Dental societies and congresses must exist for the education and advancement of all, and not for personal notoriety.

It certainly behooves every progressive dentist to identify himself with some dental society to aid and abet not only by his presence but in an exchange of ideas and methods. It is by contact and comparison we advance. We receive the reward of duty done, as well as mutual benefit. We cannot stand still; we either advance or recede. Let us not become old men before we discover how rich we are in thought and deed. We all have our place on the ladder; it rests with ourselves whether we go up or down. Progress is our safeguard, for when, in our own opinion, we become oracles, and ignore the opinions of our equals, we shall have passed that period of usefulness and become an enemy to our chosen profession, rather than a benefactor.

A STUDY OF THE BICUSPIDS.

BY ALTON H. THOMPSON, D.D.S., TOPEKA, KAN.

[Read before the Midwinter Fair Dental Congress.]

THE very lowest animal forms in which crushing teeth appear are the crustacea and some insects, in which there are cusped prominences or tuberculated crowns on the triturating plates, or stomacholiths, found in the stomachs or gizzards. These are calcareous pieces, armed with lateral, molar-like organs, which are bicuspid in the lobster and tricuspid in the crab. The mimetic resemblance of these forms to the grinding teeth of the higher vertebrates afford a beautiful illustration of the way analogous structures may be evolved in dissimilar parts for the performance of similar functions. These forms are only analogous with true teeth, however, but are not homologous in either origin, structure or position.

Mere crushing teeth appear first in the vertebrates—in the fishes: some of which, as the rays, parrot-fish, sargus, etc., have well-developed pavement teeth of various shapes for the breaking and crushing of the shells of mollusks and crustacea. These are not true grinding teeth, however, as they do not triturate food nor perform any part of the function of true mastication.

True tuberculate teeth do not appear until the stage of the higher forms of reptiles, as some of the lizards have molars which are imperfectly cusped for true mastication. These are the beginnings and forerunners of the molar series in the mammalia, which leads to the progressive development of the bicuspid, tricuspid, quadricuspid and quinquicuspid molars in the higher species. The lizards show the first tendency toward the duplication of cusps, which is repeated over and over in various ways in later forms. The variety of multiplication and duplication of cusps causes the great diversity of molar teeth as presented among the mammalia. Even in the same genus cusps and tubercles are added or omitted with facility and varying frequency. Thus, in man the first upper molar had originally three cusps (the primitive form of this tooth), then a fourth tubercle was added, the disto-lingual, which makes the ordinary quadricuspid upper molar of man. Then again a fifth tubercle or cingulum is added on the lingual face, but, as illustrating the great variability of these added cusps, the fifth tubercle is very inconstant and appears with great irregularity. So also the fourth cusp is variable and occasionally is absent, thus making the tricuspid upper molar as sometimes seen in man. It is of greater constancy, however, than the fifth tubercle, although both cusps are more or less irregular. In the earliest typal forms of mammals fewer cusps or tubercles are found. The genealogy of many species show the great variability of the tuberculate teeth and the many forms through which they have passed during the progress of their evolution.

The bicuspids in man are synonymous with the premolars in the *quadrumana* and other lower mammals. They succeed and displace the molars of the deciduous set, which are the proper grinding teeth of childhood, and perform the functions of the true molars during the first years of development; they are usually patterned like the true molars, which appear behind them as the jaws grow longer. Having completed their term of service they are thrown off and are succeeded vertically by the "false" or "premolars," *i.e.*, the molars ahead of, or anterior to, the true molars. The premolars usually perform the part of crushing in the function of mastication, but have little to do with true grinding and insalivation, except perhaps to supplement the true molars in the performance of that function, or to perform it vicariously when these are lost.

In some animals the premolars are the most important members of the molar series—as in the *carnivora*, where they have large cutting-blades developed from the regular tubercles, and the true molars are much reduced or suppressed entirely. The function of mastication proper is much diminished in this order, but in the other extreme order, the ***herbivora***, where this function is developed most strongly the premolars assist in its performance. For this purpose they, like the true molars, have the tissues arranged so that the irregular wear preserves a constantly rough surface for the more effective trituration of resisting animal substances.

In the *insectivora*, the lowest living forms in the line of the genealogy of man, we find the premolars excessively developed for a special purpose, with long, sharp cusps, like the true molars, for crushing the hard coverings of insects. For instance, in the English hedgehog the last premolar above has four sharp cusps, and the lowers have a compressed tricuspid form with long cusps. In some other members of the order the first premolar has an oblong crown with five sharp cusps—four at the four corners of the crown and a cingulum besides. Or, as in the moles, the teeth may be of tricuspid form, growing large toward the rear. The lowers are compressed and conical with a talon at the base. The shrew-moles of America have trihedral premolars above and compressed below. In one curious species the two upper first premolars have six cusps, and the lower five. The upper premolars usually have three fangs and the lower two, but in one species the first above is unicuspid with a posterior talon and only two fangs, and the fourth is bicuspid with two fangs. And so the order varies extensively, but shows conspicuous relationships and prophecies of the tooth forms found in the quadrumana and in man.

As we approach the quadrumana we find the premolars undergoing rapid configuration. These teeth are very important members of the molar series in this order, and are variously developed to perform the crushing function; from a resemblance to insectivorous forms in the lowest species they advance to the true bicuspid form in the higher apes. They then present the final form of the premolars as found in the primates, including man himself.

In the lowest of the quadrumana, the lemurs, the three premolars have the outer cusps prolonged into a compressed pointed lobe, while the inner cusp is a mere tubercle or cingulum, which is usually larger in the second and third premolars. The general outline of the crown is triangular—the buccal face being wide, and the inner cingulum presenting on the point of the V on the lingual face. In the *galeopithecus* the first upper premolar is trihedral (like those of the insectivora), or again simple and compressed, but supporting two triangular prisms, which are probably the forerunners of the rounded cusps on the bicuspids of the primates. The second premolar of this family has, beside the two prisms, a pointed talon at the base in the interspace. The first premolar below resembles the canine, but is larger, and the second is like the true molars with a broad quinquicuspid crown. In some of the *indris* the premolars are conical with the lobes produced into sharp points. The *makis* have the outer part of the crown prolonged into a compressed-pointed lobe, the inner part forming a tubercle which is largest in the second and third premolars, thus approaching the bicuspid form.

In the New World monkeys, which are nearest the lemurs in most characteristics, the premolars are similar also. They have the pointed external lobe, the depressed inner tubercle and present the characteristic V-shaped outline. The second and third above sometimes have the internal lobe enlarged to form an additional ledge. The *howlers* have trihedral premolars with long external cusps and depressed inner tubercles. The lower premolars are of similar form. Both have a strong transverse ridge descending from the apex of the external cusp to the internal tubercle. In the *capuchins* the crown is divided into two trihedral-pointed cusps on a transverse line, the outer one being the longest and largest. The transverse diameter of the crown exceeds the antero-posterior. The first premolar below differs in form from the rest—a short, trenchant ridge extending forward from the outer cusp and opposing the inner surface of the canine tooth above. The two cusps on the second and third premolars are less unequal than those above—the inner one being most pronounced. The little *marmoset* has premolars of lower type—the external cusps being quite long and sharp, the inner tubercles much reduced, and the crown being somewhat trihedral in outline. The lowers are much compressed, the outer cusp prolonged and sharp, the inner tubercle reduced to a mere ledge. The first premolar is largest and longest, both above and below, and the others decrease in size toward the rear.

In the Old World monkeys the number of premolars is reduced to two on each side of each jaw, which approach the bicuspid form by the reduction of the external cusp and the raising of the inner tubercle. This gives the bicuspid form as found in the higher apes and in man. They are, however, still implanted by three roots above and two below. In the *mandrills* and *baboons* the upper premolars have large external and small internal cusps. The first premolar below is remarkable for the anterior prolongation of the base of the crown, which is worn to a sharp edge by the shearing action of the upper canine in closing the jaw. The second premolar has a quadricuspid crown.

In the *anthropomorpha* the premolars still have three roots above and two below, like the true molars. In the *orang* they are reduced from the large size in the baboons. The crowns are rather cuneiform, the outer cusp being long and pointed, the inner tubercle being rather feeble. The second is more blunt and round in form than the first. The crowns of all the premolars are less angular than in the baboons. The lower first premolar has a trihedral outer cusp with three descending sharp ridges—the inner ridge having a tubercle raised on it at its base. In the second premolar this tubercle rises almost to an equality with the outer one.

In the *chimpanzee* the premolars are bicuspid, the external cusp being the larger, but they are well advanced toward the human type. Below the first premolar has a subtrihedral crown with the outer anterior angle produced forwards, still indicating the peculiar form of this part of the crown in the baboon, in which it forms a sharp edge. The summit of the crown terminates in two sharp trihedral cusps placed transversely. The outer one rises higher and has a well-developed ridge at the inner and posterior part of its base. The second premolar is much smaller than the first, and has a subquadrate crown with the two cusps developed from its anterior half, and a third smaller one from the inner angle of the posterior ridge.

In the *gorilla* these teeth are bicuspid and resemble those of man very much in form, but are larger and coarser. The outer cusps are much longer than the inner, and both are more pointed and acute than in man, and the ridge connecting the two cusps is more continuous, sharper and stronger. The crowns are more angular and more highly specialized, although the forms of the premolars are decidedly bicuspid and far removed from the lemuroid type of these teeth, as exhibited in the lower quadrumana.

In *man*, as in the higher apes, the upper premolars are of bicuspid form—the crown being complicated by the addition of the internal cone to the primitive external cone, the tooth being thereby made a double canine. The internal cusp of the bicuspid premolar is formed by the raising of the internal cingulum to form a large tubercle, which corresponds with the external cusp, except that it is not so sharp and is usually of lesser height.

They differ conspicuously from the premolars of the anthropomorpha also in having but one root (except that sometimes the first bicuspid is bifid, and when it is single there is always a groove on both the anterior and posterior sides of the root indicating a tendency to bifurcation), while the premolars of the apes have three roots above and two below just like the true molars. Occasionally three roots occur on the bicuspids above and two below; but these examples are merely reversions to the primitive form of this tooth and are not normal in man.

The outline of the upper bicuspid is a rounded, pear-shaped oval, the angles all being reduced from the rough shape these teeth present in lower forms. The oval is, of course, the reduced rudiment of the sharp triangular form of the premolars of early fossil typal mammals, and of the insectivorous and quadrumanus forms.

The buccal face of the upper premolar is typically of a decided spear-shape, which is very marked in the lower mammals in which the outer cusp rises sharp and prominent, with a strong ridge leading from it up to the cervical border. The marginal ridges descend rapidly from the point of the cusp to the proximate margins, and these margins are often raised into decided cingulums—or even sharp cusps, as in the insectivora,—with grooves leading up to the cervical border on either side of the central ridge. In man these are all reduced, so that the buccal face is a rounded oval, with more or less conspicuous markings of the original angles, ridges and grooves of early species. It follows, therefore, that the buccal face of this tooth in man resembles somewhat the labial face of the canine, but it widens more rapidly from the cusp, giving this a blunter appearance.

The lingual face is more rounded in man, and displays a fullness of form that recalls the prominent marginal ridge in lower forms before the cingulum was raised to a tubercle.

The mesial and distal faces are round or ovoid, being fuller than in lower forms where the triangular form of the crown made wide V-shaped spaces opening toward the tongue. In man this space is closed, except in some few instances in which there is an approach to the primitive V-space. As a rule the bicuspids are in close contact across the proximate faces at the marginal ridges. The crown tapers more abruptly toward the neck also, which is perhaps more constricted than in lower forms.

The second upper bicuspid in man is less angular and more rounded in every direction, the cusps are less sharply outlined, and the dividing groove is less distinct than in the first. It seems to be more reduced and rounded in every direction.

The distinctive feature in the architecture of the upper bicuspid is the formation of the crown out of two dental cones. These teeth are very weak as regards their mechanical strength and resistance to force in mastication, for if the proximate marginal ridges connecting the cusps happen to be destroyed by disease the crown is liable to be split by the occlusion. This weakness is the result of the imperfect fusion of the transverse triangular ridges, which are cut in twain by the antero-posterior groove, which usually extends downward to make a fault in the enamel. Owing to this defect these teeth are mechanically very weak. In the quadrumana this transverse ridge is continuous, the triangular ridges descending from the cusps are fused together and the crown is in consequence very much stronger than in man.

It is to be noted that the upper bicuspids are the only members of the premolar series in man which are really bicuspid in their typical form. The second lower bicuspid is decidedly tricuspid, and the lower first bicuspid is more of a canine than a bicuspid in its usual typal form, because the inner cusp is almost suppressed, being rarely as large as the buccal. In fact, the crown looks like a canine with a cingulum raised upon its inner face—for this cusp is more of a cingulum than a cusp, although it varies much in size. This cingulum is a rudiment of the lingual talon on the lower premolar of the moles. The outer cusp is long and pointed like a canine. A strong ridge connects the external with the lingual cusp, descending from the point of the former, and in some instances is raised up into a conspicuous edge, but this is very variable. The crown of this tooth is rather round in section, being widest in the region of the marginal ridges and tapering rapidly toward the neck, thus giving the contour of the crown a decided bell-shape. The buccal face curves over toward the lingual side, so that the outer cusp is directly over the central axis of the tooth. This tooth bears a close resemblance to the lower premolars of the insectivora, in that the external cusp is the one of conspicuous prominence, and the inner tubercle is much reduced. It is therefore essentially a primitive, unicuspid premolar, as the lower premolars often are in the lower forms. It graduates from the canine, and is the tooth that properly occurred next to the canine in that archetypal mammalian dentition which was graded from tooth to tooth in regular continuity.

The second lower human bicuspid resembles the first somewhat in the bell-shape of the lower portion of the crown, as it is widest at the marginal ridges, is rather circular in outline at that location, and tapers rapidly toward the neck. But it differs widely from the first in regard to the features of the grinding face, and also from the upper bicuspids, in that it has three cusps in its true typal form, and is essentially a tricuspid. It has one large, rounded cusp on the buccal edge, and two smaller, sharper cusps on the lingual edge of the marginal circle. The latter may be of equal size, or the mesial one may be considerably developed at the expense of the distal, but even when enlarged so as to make the tooth appear bicuspid in form the distal cusp is still present, even though it be a mere tubercle on the distal marginal ridge. The third cusp may be called a posterior cingulum, but deserves consideration as a cusp.

The tricuspid form of the second lower bicuspid is of course a reproduction of the tricuspid premolar of some lower species, although the triangular form of the crown is lost. It is different from the lower premolars in these forms, also, in that these teeth are usually compressed and narrow, and formed to strike against the internal ledge or tubercle of the upper premolars. The internal cusps of the lower bicuspids are probably a development of the internal talon of lower forms which was developed to grasp the inner tubercle of the upper premolar.

As the typical second lower bicuspid is properly a tricuspid tooth, in dental prosthesis this form should always be followed in the artificial restoration of this tooth. So with the first lower biscuspid, which is typically unicuspid with an internal cingulum, which form should be followed in prosthesis. The bicuspid form of the lower bicuspids, as sometimes seen in man, is accidental and not typical, but this form is usually followed in restoring these teeth. The lower bicuspids are too frequently made just like the uppers, even in the artificial teeth furnished to us. This is anatomically wrong and inartistic, and occasions much of the difficulty experienced in the articulation of the bicuspids. Therefore, the first lower bicuspid should always be of typical unicuspid shape, and the second tricuspid that the anatomical forms may be properly reproduced and the artistic and mechanical requirements be better fulfilled in practice.

The importance of the study of the bicuspids consists in their prominent position in the arch—being placed between the cutting and prehensile teeth and the grinders. Their office is essential to the proper performance of the function of mastication, as well as their value to æsthetics of the mouth; therefore, any contribution to the knowledge of these valuable members of the dental arch needs no apology.

CHILDREN'S TEETH.

BY E. E. CAWOOD, D.D.S., PORTLAND, OR.

[Read before the Oregon State Dental Association, October 4, 1894.]

IT is a fact that even one as unassuming as myself can instruct you upon this important subject, on account of the palpable fact that your knowledge thereon is markedly deficient, because you do not have your attention often called to this phase of our work. This lack of knowledge upon the part of most hard-working dentists at present is because the people are not educated up to the necessities for work upon the teeth of children, and our attention is, therefore, never properly or forcibly attracted to the subject from this source. You do not see the children's teeth, nor have to work upon them; therefore, one who has made somewhat of a special study upon this subject in a practical way, as I claim to have done, feels that in the selection of this subject he may be the means of doing some service to the dental profession, and to create an interest will be doing good to the present generation of young people.

The opinion of the public is that the first teeth are for temporary use only, therefore it matters not whether the function for which they are intended is carried out or not. Indeed, to such an extent is this taught by the family dentist that patients consider it a just cause to change dentists when one takes enough interest in the children to advise the preservation of the temporary teeth at a small expenditure of money. This habit on the part of both parent and dentist is criminal.

The part which the dentist plays in this matter is often occasioned on account of fear of having the appearance of standing alone in a matter involving expense to the parent, and which might result in the loss of an occasional family. Until the trouble is remedied a paper upon the care of children's teeth would be wholly out of place.

The few dentists who appreciate this condition, and who are burdened with a desire to correct the same, could do a great deal of good if they would arrange to meet parents and children at their schools on certain afternoons to explain to all the importance of securing from the deciduous teeth all possible physiological service, which can only be done by preserving them in the best possible manner. This would necessarily place upon the teachers the duty, to some extent at least, of advising with the students thereafter from time to time of the necessity of often consulting a dentist.

In my opinion more good could be done in this way than any other, and the dentist could take a much-needed rest which he otherwise might not be able to afford. Coming from the country to the city myself, I can say from observation that even the very best families in the rural districts argue that the dentist was dishonest when he wanted to fill the first teeth, and that they were just a little too sharp for him and would not permit him to run up a bill on them.

My remarks thus far may not be what you would expect from the title of this paper, but the paper, to be of value, cannot treat its subject in any other manner: we must understand the necessity of getting the children's teeth to treat, and have the parents understand that this work must be done, before we need listen to a paper on how to treat such teeth. If these points can be clearly and forcibly impressed upon you, and the profession impelled to take the matter up as suggested; I will feel that I have written the most valuable paper that has been listened to since the organization of the society.

When a mother brings a child to a dental office she never thinks that there is a possibility of saving the tooth. She must see the dentist a few minutes alone, to inform him what method shall be best to employ in the management of the child, although, perhaps, she always has been unable to do much with him, because the child has no confidence in her, from the many times she has prevaricated to it. After treating a child in an honorable manner we have been told that we had no aptitude whatever for managing children. "A First-street dentist put the 'faucet' up his sleeve and had the tooth out before the child knew what had happened," says the mother, which, although she does not know it, reflects upon such dentist in a manner wholly and entirely uncomplimentary to him.

I am in the habit of embracing such reasonable and ethical opportunities as present in urging children or their parents to not neglect the first teeth. I feel that in sending or urging a child to go to his dentist I am doing a much greater service to the child than to the dentist. I have succeeded in stirring up some people on this subject, and feel that I have accomplished some little good in this particular. It affords me very great satisfaction to believe so at any rate. One case I recall where, in conversation with a gentleman residing in the suburbs of Portland, the subject was brought up by me in as casual a manner as possible, and was being discussed by the father, a gentleman of more than ordinary intelligence, who said: "Yes, I agree with you, teeth should be looked after, and as soon as my children's second teeth appear I am going to see that they have them attended to; but these, the first teeth, of course, it does not matter." Noticing from my looks that I did not quite agree with him, he continued, "Is not that what you think would be right?" Then my time had come. "I judge from your remarks that you do not understand at what time all the permanent teeth erupt. You should know that all permanent teeth are not second teeth." Then he was surprised to learn that the six-year molars were the first and last in that particular location, etc.

Another case: A patient, to whom I explained this subject, remarked to me that I ought to flood the country with circulars informing the public of the facts touching thereon. She forgot that, if such a method should be adopted, the first country dentist who would have one of these circulars shown him would, in the fullness of his "experience and knowledge of many years standing," sneeringly retort that "the teeth would soon come out anyway," and that there was neither "sense nor reason for filling temporary teeth." Again illustrating the necessity for educating the dentist before we can reach the public.

What should be taught in the schools by the lectures before mentioned should be, among other things, the number of deciduous and also the number of permanent teeth, their time of eruption and such a description of the teeth that the permanent could be differentiated by every parent. That with the development of the deciduous comes also the growth of the permanent teeth, although much slower; therefore the germ of the second is always present, to be influenced by what is done to the first. The temporary teeth serve for many purposes, but a few only will be necessary to be understood by parents and children.

The eruption of the first teeth should be a hint to the mother that the child needs to subsist upon some other food than milk. The child needs now some other form of food, which, in turn, it is able to masticate, and which it will again grow out of at the time that the permanent teeth begin to appear.

If these first teeth would always remain the child's mouth without decay, until such time as they had served their purpose, there would be no need of a dentist. But, if the teeth do not remain whole, the second teeth will not erupt any earlier, and there will therefore be a vacancy permitted, which will cause contraction of the arch, and although the second teeth are developed outside of the primary teeth in the superior-maxilla they will be crowded and likely to be forced out of place in erupting. Nature formed all the members correctly in the first place, and took the precaution to have the small bicuspids come in the place of the large temporary molars, which will make room enough where there has been no interference.

We also notice in extracting children's teeth before the proper time that the roots are large and long, but at the correct time they have no roots at all. This surely means something; and we are also safe in teaching that these roots have not only been absorbed to allow the removal of the crowns, but to furnish nourishment for those which are to follow, without which they will never be as good as they otherwise would be.

If among the roots of the temporary teeth are standing the crowns of permanent ones, you cannot extract the temporary without mechanically injuring the underlying permanent set, causing abrasions, dislodgments, and otherwise interfering with the nourishing of the incoming teeth. In proof of this, how often have the germs of permanent teeth been extracted with the roots of the temporary.

Having decided that it is necessary to care for the deciduous teeth, it is now a pertinent question how we shall best accomplish this end. In order to have these teeth last out their proper time, a dentist must see them early, since they cannot be treated as the second teeth, as, for instance, we cannot well devitalize them, for arsenic is not permissible on account of the large foramina, which would offer a probable means of producing dangerous symptoms from arsenical poisoning. These teeth should be cut out and filled at the first appearance of decay. Then trouble is seldom experienced.

When teeth have been let alone until the child has the toothache, nothing can be done less than devitalization. As we are barred from the use of arsenic, it is no small task, and can only be accomplished after some time and much patience on the part of the dentist and the little sufferer, by the use of pressure with cotton saturated with eucalyptus or some such medicament. After removing the pulp the space must be pumped full of chlora-percha, and in this way the teeth may be saved until such time as the second teeth may need their space. This filling of the large cavities and roots will change a pathologic condition as near as possible into a physiologic one, and in this way we may even have some absorption of the roots, as I have often removed such temporary structures when the roots have been entirely absorbed, leaving only the gutta-percha fillings over the incoming tooth.

When the teaching I have mentioned has been thoroughly carried out, and the public has been given to understand that children's teeth should be attended to, we shall not have young ladies coming into the dental office (for the first time in their lives) just before their contemplated marriage, asking us to put in one or two gold fillings for appearance sake, and allowing a large number of serious cavities to remain in the mouth.

REPORTS OF SOCIETY MEETINGS.

THE SAN FRANCISCO DENTAL ASSOCIATION.

THE San Francisco Dental Association held its regular monthly meeting at the rooms of the Dental Club, corner Post and Stockton streets, Monday evening, November 12th, with President C. E. Post in the chair.

The following letter from Dr. Eugene S. Talbot was read and discussed:

CHICAGO, Ill., August 15, 1894.

Dear Dr. Goddard: In answer to your request for explanation of my statement before the Midwinter Fair Dental Congress, "that nothing new had been written in dentistry within the past twenty years," I would say that I take great pleasure in trying to explain my statement to you and my friends on the coast.

In your letter you speak first of prosthetic dentistry. I did not take mechanical dentistry into consideration, nor do I consider it comes under the head of "Science in Dentistry."

The object in making the statement was to convey two ideas to dentists which in the expectancy of advancement must be carried out to the letter. First, do original work, and, second, give credit to those who have done original work. Should a dentist read a paper upon some subject pertaining to the science of dentistry, and it did not contain original thought or work, that person must necessarily use the thoughts and ideas of others who may have written twenty or thirty years ago. As an illustration: a dentist in Iowa, some years ago, read a paper before a dental society which he had taken word for word from a paper by Dr. James Truman of Philadelphia, but called it an original paper. A similar case happened to a paper belonging to Dr. Farrar of New York. I was very much surprised to hear a very prominent dentist use material as original facts at the Columbian Dental Congress which took me twenty years to solve.

Nearly every month the dental journals contain articles on amalgam filling, the treatment and filling of root-canals, in which not a single new idea or fact has been shown and proven. What the scientific dentist of to-day thirsts for is something new in science and original work, and this brings me to the work done by Prof. Miller of Berlin, who has shown and proven by actual experience, demonstration, hard work and years of study that caries is caused by certain germs. His work was original and strictly scientific.

Look over the literature in our dental journals for the past ten or even twenty years, and can you honestly say that any new ideas have been advanced that can be *considered facts?* To be sure, the journals of each month contain articles on all the threadbare subjects pertaining to dentistry. Is there a single thought backed up by experiments and research?

You speak of H_2O_2 and campho-phenique: are not these, as well as all the other preparations called new remedies, the results of pharmaceutical laboratories for the use of medical men, and are simply applied to dental diseases? Have dentists in a single instance discovered the effects of any drug upon the pathological conditions of the mouth? although some dentists have spent a lifetime in introducing new remedies. And finally, in answer to your query about advancement in prosthetic dentistry, "though they have not been many," would say that they are simply old mechanical principles adapted to use in the present day, or, as some one has said in the *Dental Cosmos* a few years ago, "dental subjects have been written out."

Respectfully yours, E. S. TALBOT.

DISCUSSION.

Dr. L. Van Orden.—"Nothing new has been written in dentistry in the last fifteen or twenty years" is a statement that is unique in its unequivocalness. Coming as it does from a gentleman whom we have learned to admire for his earnest and able work in the interest of our cherished calling, there is more than a usual demand that so unqualified a statement be carefully considered. There is still another bold statement quoted by Dr. Talbot, but whose authorship is not given, to the effect that "dental subjects have been written out." To this latter I feel justified in making a specific denial. It is not true. I will not attempt to consider the opening quotation in a direct way by giving some sort of a digest of the dental literature of the last fifteen or twenty years. This would be a difficult though worthy task; but my effort to-night is not intended to be polemical but, if possible, supplementary. More profit will accrue to us by a frank acknowledgment of those contentions that are self-evident, while the consideration of some collateral facts which have been ignored may serve to make the opening quotation, even if true, far less deplorable than it appears to be at first sight.

We may suspect the worthy Doctor of being something of a humorist, who would cleverly lay a burden of disproof upon our unsuspecting shoulders, and set us all laboriously to making up lists of original articles supposed to be entitled to a true scientific status that we, in our innocence, may think have been written in the last fifteen or twenty years by and for the members of the dental profession; and when, with a great display of righteous indignation, we shall have produced these lists he will be prepared to say with a gentle smile of pity and with a twinkle in his eye, "Oh, such an article had its origin way back in the '30s"; another, "is but a clumsy rehash of the days of '49 and '50, or thereabouts"; or, "dear me, didn't you know that John Hunter was the father of that?" and "bless me, didn't you know that the Egyptians practiced such an operation? But, tut, tut! you poor self-deluded, unscientific practitioners of a mere art, this is a shocking waste of time; you must all go to work and prove that you are somebody, or the medical profession may possibly never recognize you."

They are perhaps most happy who, leading a life of industry in some worthy calling, can, from time to time, take an inventory of their possessions and review in a calm spirit their goings and comings and the average result of their efforts. Remembering the notable progress made in all branches of science and art suggested to us by Dr. M. H. Fletcher, and thus avoiding an offensive egotism, and, on the other hand, being wary of a scarcely less pitiable self-depreciation, let us consider to the extent we conveniently may what the dental profession has accomplished in the last fifteen or twenty years and decide, whether scientific or not, if it has been a worthy effort.

Preliminary to such a consideration of facts and principles it will be mere justice to reflect for a moment upon what the *personnel* of our profession consists in, and how much the daily routine of its work contributes to or detracts from the possibility of true scientific achievements. Almost without saying, it is to be admitted that in common with the medical profession, the requirements for admission to it are but just beginning to be placed beyond the line of the tuition fee in offices and schools of dentistry. The number of learned and disciplined aspirants to this professional life must of necessity have been small up to a very recent period. But here comes in a beautiful phenomenon: admission to a profession in most cases has an ennobling influence upon character; a desire to learn and to teach again is the noticeable characteristic of those who attend our periodical gatherings. That some learn but little they themselves lament most sadly; but that some can and do teach much is cause for rejoicing among all, for true unselfishness cannot hide its light, even if it would. In this latter class who will hesitate to place our good friend Dr. Talbot? Could any one fail to note his singleness of purpose in leaving his work at a critical time of the year's practice to travel several thousand miles, without even the privilege of viewing the natural beauties and wonder spots of our State, that he might be true to his own conception of the best means of building up this profession? It is true that he has built up close and valuable associations with the medical profession; but it may be assumed that a man of probity will always hold as most sacred his duties to that vocation which is the source of not only his family's maintenance, but the mainspring of all his best efforts in life—the one opportunity, as some of us will confess, of an existence in which intellectual effort may go hand-in-hand with the daily seeking for life's sustenance.

What character of work does this humbly derived profession carry on? Is its work difficult? Yes. Is it exacting? Yes. Is it exhausting? Yes. Is it remunerative? We hope when that question has been scientifically studied the future worthy dentists may all be well remunerated; at present we are not less able in anything than in the caring for the incomes that reach us.

Let us contemplate with generous yet just minds the work of this profession—in all its newness and youth—in these latest fifteen or twenty years. What has it built largest and best of all? Its "scrap heap"! both material and mental. Think of the cumbersome, costly appliances that have been pitched into it; the instruments of all sizes and designs, the apparatuses for obtunding sensitive dentine; the secret obtundants for extracting, which so many use, but which so many more do not use. Think of the heaps of bigotry and ignorance that have been and will be tumbled into it; we may hope that the notable triangle of envy and shortsightedness that sometimes shows its lines leading between such grand cities as New York, Philadelphia and Boston. and the unfortunate and notorious jealousies of microscopists and pathologists, and, above all, the rivalries of educational institutions, may soon go jangling after.

Our profession, after passing that stage of marvelous results, in which the napkin, hand-drill, hand-pressure and non-cohesive gold were the sole reliance—save one thing only, courage—has been mainly employed in developing three branches of its work, viz., eperative technics, prosthetic technics and orthodontia technics. In operative technics the efforts were at first crude, and for the day only. The new conditions brought about by the introduction of the rubber-dam and cohesive foil and the power engine demanded the almost undivided attention of the brightest minds. The profession then was almost as closely anchored to a gold filling as a junior student is now to the date he first attempted to introduce one in the mouth of a dispensary patient. You are all familiar with the steps from light to heavy and from heavy to light mallets, and from coarse serrations to the smooth points in that beautifully simple and efficient instrument, the mallet of Bonwill. But Black, Weeks and others have found time to introduce an exact study of dental anatomy and operative technics; think of the results of their labors in the next twenty years. The graduate of to-day should be a hundred years in advance of those good men of hand-pressure fame. I will make only brief reference to the numerous supply houses for dentistry; in a few instances their factories have already reached vast proportions. What of the future in this direction?

In prosthetic technics the tale is almost all yet to be told; its scrap heap will be a good-sized one. It has not retrograded—vulcanite or no vulcanite. Vulcanite, only, has made soldered dentures as cleanly as bridge-work. This latter work may yet command our united admiration. In the meantime but a meager minority have any conception of the worthiness of partial clasp dentures made after the methods of Bonwill and Richmond, or their methods in combination, or of the serious duty a dentist possesses of building up and restoring lost masticating surfaces. In parenthesis, how many habitually restore the tipped and rotated lower second molars after extraction of the first inferior molars? How many use partial dentures as a protection against undue wear and against gingival and pericemental irritation?

In orthodontia technics we witness one of the brightest flowers of our professional day. We are proud of its impetus on this coast. Our ex-President, Prof. C. L. Goddard, deserves lasting praise as being the first to *require* the treatment of cases of orthodontia of undergraduates. A visit to his clinic on Wednesday afternoon is full of interest, of profit, and of fascination. Time will not permit further reference to this infant work of our profession.

Duty and pleasure bid us all to think a moment upon the admirable journals that visit us, bearing monthly evidence of growth, of better and more rigid editing, of desire on the part of their contributors to deserve the title of scientific. In the midst of all this technical toil and strife there has been time to begin to build up a literature. I will single out but a few of our text-books. First comes the "American System of Dentistry." Have you read it? if not, do so and wonder at its value and its worthiness. And Prof. Flagg's "Plastics and Plastic Fillings," be careful or it may convict you of profound ignorance on some subjects. Our text-books on orthodontia, the lamented Rehfuss' "Jurisprudence," the surgeries, anatomies and very creditable works on chemistry and metallurgy delight and instruct. The work done by Talbot, Peirce, Barrett, Bonwill, Patrick and others in the study of crania commands our lasting and admiring appreciation.

After these days of dentists' toil there has been, by hook or by crook, time saved or stolen to work with the microscope, and at analysis and synthesis. As the astronomers of the world may be said to make a fine corps looking through their telescopes in different languages; so here and there, tired but devoted dentists perform some nightly service for their profession and for science, but they should reflect that in a profession's life fifteen or twenty years are but as a day. And so, with cordial, fraternal, cheery greetings to our friend Dr. Talbot, who not only has the courage of his convictions, but the ability to receive as well as to give sturdy blows, we wish to suggest as the opinion of the dentists of the Pacific slope, that

> Dentistry is youthful; we plead guilty to that.
> As for being "written out," she has but been "written at."

Dr. Hodgen.—I do not believe Dr. Talbot, so genial and happy, is the pessimist he would have us believe him, left as we might be to his paper before the Congress and the letter just read. In the first place he insists that "science in dentistry" excludes prosthetic dentistry, or mechanical dentistry (using these terms synonymously). I am of the opinion that to do away with the mechanics of our profession would be the practical doing away of it as a whole. Certainly it would lose its individuality; all that could be left would be a suspicion of surgery and a smattering—hardly recognizable—of medicine. By this I do not intend to convey the idea that I do not believe dentistry to be scientific; that I do not believe it to be a specialty of the great healing art, or that I would bend to in any way indignify it as a professional calling, but, on the contrary, because I am convinced that there is as much science in dental mechanics, whether it be the making of a denture, adjustment of a crown or bridge, the regulating of irregularities, making of an artificial velum and palate, an interdental splint, or what not, as there can be in the long-winded impractical fad of "investigation," as it is practiced by some scientific men. The great majority of our instruments and devices are the inventions of our brothers; there is certainly as much science in their development and perfection as could be in their use. To say that Bonwill, Webb, or others are not scientific men because they are men of mechanical brains and skill, or because they have never discovered the exact method of staining and exhibiting the micro-coccus affecting some of our patients with an unwillingness-to-pay-fees, or demonstrated why the manifestations of uric acid diathesis are localized in the feet and limbs of the rich and the teeth of the poor, is beyond the scope of negative assertion.

It is true, as the Doctor states, that men in our profession have been known to commit plagiarism, but such crimes are equally true in all literary and scientific fields. It is, however, fair for one to digest the *facts* and *truths* of others, and as soon as they are thus digested, if they can be at all enlarged upon or corrected, the possessor may incorporate them in a paper as his own. A fact is of no value hidden in the voluminous verbiage of one paper in, say, a remote corner of civilization, but it is, if of any scientific worth, best taught by repeated discussion, viewing it from all sides and in all lights. That which is good and of real merit cannot be too often repeated or studied from its every aspect. Religion, science, law *et al.* are founded upon certain logical facts and truths; these have not been the product of a decade, or two, or twenty, but in the case of the latter two each has been the product of ages and centuries. Modern science dates and is founded upon three discoveries: that of Copernicus, the effect of which (to borrow St. Simon's words) was to expel the astrologers from the society of astronomers; that of Torricelli and Pascal, of the weights of the atmosphere, a discovery which was the foundation of physics; lastly, that of Lavoisier, who, by discovering oxygen destroyed the theory of Stahl, the last alchemist who could be excused for not being a chemist.

We may as well claim that the Christian religion, which is the same to-day, yesterday and forever, as it has been for 1900 years, is of no value, and worthless and lacks progression because it is (or should be) the same as that which the Lord so long ago gave us.

Rome was not built in a day; nor can we feel that because dentistry has not made the comparatively great strides it did in its infancy, or that electrics has made in the last few years, it is on the wane, or not progressive, notwithstanding it is true that there is great room and need for further and greater investigation along practical lines.

Dental art of to-day is not keeping pace with dental science. The fire of dental practice is not capable of consuming with profit its proffered fuel—theory. Such a truth is certainly paradoxical when we recall the intensely practical turn of our times and our nation, but is nevertheless obvious to all.

Dr. C. L. Goddard.—Mr. President, Dr. Talbot is certainly right in one thing, that is, in advising dentists to do more original work, and in papers that are written either for societies or for publication, to give credit for work done by others. There is too much repetition in journals where many papers are published that are written for local societies merely to refresh the memory of the members and arouse discussion. Old thoughts dressed in new words often make an impression at a second hearing that they failed to make at a first. In such cases originality should be claimed for the dress only, and the thought be credited to the author.

Dr. Talbot does not consider mechanical dentistry under the head of "science in dentistry," hence does not take it into consideration in his statement. Is not the retention of an artificial denture by atmospheric pressure scientific? The proper construction of an artificial denture is scientific, for it depends on a knowledge of pneumatics, so that by trimming the impression or cast, or special shaping of the plate air can be excluded from between it and the tissues on which it must solidly rest. The proper selection and arrangement of the teeth of an artificial denture depends on some knowledge of art—of color shade and forms.

What does scientific mean? The term is from the Latin, *scio* (I know). Any process that requires for its proper performance a knowledge of principles involved is scientific, and every invention in plate, crown or bridge work is something "new in dentistry." The number and nature of these inventions and improvements is so well known to all who have been in practice for twenty years or more that it is not necessary to mention them.

A thing may be old in other arts, sciences or professions, and yet "new in dentistry." Did a physician or chemist ever use H_2O_2 for sterilizing the putrid contents of a pulp canal, or the stronger pyrozone or peroxide of sodium for bleaching teeth? No! It is needless to enumerate the new remedies that have been introduced since twenty years ago, when our chief remedies were creasote, arsenic and iodine. That they have been used by others for other purposes is nothing to us. Their use in treatment of the teeth and surrounding parts is not only new to us, but new to those who used them for other purposes; not only "new in dentistry" but new to the world outside.

The synthetic production of bitartrate of lithia (tartarlithene) by Dr. Kirk, for the treatment of rheumatism and dental manifestations of the same, is an honor that cannot by any possible means be claimed outside of our profession.

The correction of irregularities is scientific, for its proper performance depends on a knowledge of all the parts involved; of their physiology and possible pathology, that the operator may take advantage of the former in causing absorption and rebuilding, and avoid the latter in a wrong application of force or construction of appliances.

The work of Kingsley, Farrar, Guilford, Matterson, Angle, Jackson and of Dr. Talbot himself in the past twenty years has brought forward many and many appliances familiar to us all. Among these may be mentioned the Magill band cemented to the tooth and the special forms of tubes, hooks, screws, levers, etc., attached to this; new appliances for rotating, for separating, for spreading the arch.

The moving of teeth immediately by means of the forceps, as shown by Dr. L. C. Bryan of Basle, Switzerland, and Dr. Cunningham of England, were new and scientific, for they depended on a knowledge of fracture and repair in vital tissues and laws of mechanics in the application of force. The moving forward of the roots of incisors and the alveolar process with them, as shown by Dr. Case of Chicago at the World's Columbian Dental Congress, was a new operation and a great advance in this specialty.

Some things, at first experimental, become scientific when thoroughly understood and practiced in accordance with such knowledge.

Dr. W. J. Younger.—In Phoolaboobaland there existed a race of individuals whose craniums were so very thick that it was found necessary to perforate their skulls to get ideas into their heads. This was done about the adolescent period when it became necessary for the perpetuation of the genus that they should know that the period of puberty had arrived. But why it was thought necessary to perpetuate this race has never been recorded, and it is left to the imagination whether it was due to a maudlin sentimentality, such as is exhibited at the present day, when the gubernatorial pardon is solicited for criminals, or a depraved and warped humanitarian instinct which seeks to preserve freaks for museums. At any rate, it was remarked that this first conception of a fact, whether due to emptiness of the cranium or the pleasure it afforded, was the quickest disseminated and the most persistent in its effort to remain. In truth the tenacity with which it clung to the tissues of the cerebellum made it a common belief among the histographers of this peculiar people that this one idea never became entirely eliminated. When more than one idea was attempted to be forced in, fatal results often followed; for, when the brain became conscious of more than one idea the inflation that resulted, caused the pressure within the skull to be so great as to often burst it open. This condition was known among pathologists as the *tumefacto cerebrum*, the modified form of which is recognized now as "swellhead." In consequence then of the disastrous results so occasioned there was a perforation made in the base of the skull to let the effete idea out, while the new one was inserted through the hole at the top! As soon as the thought was introduced the opening was tightly sealed immediately, it took so long for an idea to permeate the brain not only on account of its denseness but for an inherent resistance to anything new; that this became necessary to prevent the idea from escaping before it could be properly absorbed. In fact, so slowly was the process of absorption conducted in some of these Phoolaboobalanders that twenty years has been known to elapse before one idea could be got rid of and another introduced. In appearance this race looked very much like the intelligent people one sees everywhere. There was one personal characteristic, however, that a careful observer could not fail but see, and that was an expression of self-consciousness—an owl-like air of wisdom which seemed to say, "I know it all; you don't know anything." That some of this peculiar people came to America and somehow blew into our profession is very evident from the fact that some of them have not yet learned that dentistry has made any scientific advancement within the last fifth of a century.

It seems to me that these persons who insist that dentistry has not advanced in the last twenty years should have their craniums uncorked in order to let into their cerebrums the knowledge of what our profession has accomplished in the last decade or two. There are several gentlemen in the profession who seem to belong to this class, the chairman of the Oral Section of the American Medical Association and its secretary, for instance. They appear not to know that for some years past an American dentist, who is an eminent professor in the dental department of the University of Berlin, has been doing some highly scientific work in our profession. However, the trip to California seems to have enlightened one of these gentlemen at least, for it has at last come to his knowledge what has been the common talk of the profession for three or four years past, that Dr. Miller had discovered that the cause of decay in teeth was bacteriological! Possibly he had heard of it before, but, perhaps it had not dawned upon his comprehension that that was "science!" I wonder what they think science is—something to eat? Possibly something to wear.

When a man is given a subject to prepare about it is in one of three periods: too much time, too little time, or just enough time. Usually too much time becomes too little time. So it has been with me in this instance. I have, therefore, neglected to look up on the advances in science that dentistry has made, and I am compelled to overcome my scruples of modesty and mention a little of my own work in this line. I will pass over the perfection of transplantation by which the operation has been made one of safety, of service, and one of beauty, and will simply dwell on implantation and the important theory awakened by this operation. Dr. W. H. Barrett, in the *Independent Practitioner*, said that if implantation proved a success it would revolutionize physiology. Prof. Garretson, eight years ago, said that if implantation should be a success Dr. Younger's name would be transmitted to posterity as a pioneer in science for having invented the most wonderful operation of the century; that his name would live with those of Harvey, Jenner, etc.; but, from what he knew of physiology, of surgery, of science, the operation was impossible. (Since implantation has stood the test of over nine years, and it is now being successfully practiced in the chief cities of the world, I hope that this very wise and learned gentleman's prophecy will come true.) *La Odontologica*, the dental journal of Spain, printed in Cadiz, published a portrait of this townsman of yours, and in a page and a half laudatory article about him says that they believe him to be the first man to have grafted bony tissue, and that implantation was the ultimate expression of science in dentistry. A writer in India calls it the wonder of wonders in dentistry. And yet, Dr. Sheppard of Boston, Fletcher of Cincinnati, and Talbot of Chicago do not as yet know anything about it.

The theory, also, of persistent vitality, with especial reference to the dental tissues, given the profession nearly nine years ago, and which has attracted so much attention in the scientific world, and has received the sanction of so distinguished a biologist as Prof. Le Conte, also of Prof. Wythe and other eminent scientists, and has been substantiated by Dr.

Jacobs, has also eluded the knowledge of these learned gentlemen. But, perhaps, they do not consider this as scientific.

In a Paris *Herald* I received this morning there was an account of the Scientific Congress just held in Vienna, and the operation of implantation by Dr. Younger of San Francisco was considered wonderful. Only scientific subjects were discussed at that Congress, but these relics of Phoolaboobalanders either have never heard of it, or it has not yet entered their brains sufficiently that this is science—inventions and discoveries in dental science made by dentists—practicing dentists—the results of which is being utilized in scientific advancement in the other departments of the great world of medicine!

There is one statement, however, made by Dr. Talbot in his paper that deserves our most serious consideration: that is the arrogating to one's self and putting forth as one's own, or allowing others to do so without correcting them, the ideas, thoughts, methods and appliances originated by another. To do this is an evidence of ignorance, vulgarity and want of education, a lack of integrity, a piracy and theft that should receive our unqualified condemnation. Abroad, the profession, as he further states, is better educated. They have the culture of gentlemen, and they, therefore, understand and are more considerate of the rights of *meum et tuum*, and so give to originators the credit which is due them more readily than we of the United States do. A person found guilty of appropriating knowingly the thoughts and ideas of others and presenting them as his own should be condemned openly and ostracised from every society, and from our own personal respect, intercourse and notice.

[DISCUSSION TO BE CONTINUED.]

STOMATOLOGICAL CLUB OF CALIFORNIA.

[The name of the San Francisco Dental Club has been formally changed to above.]

THE Stomatological Club held its regular weekly meetings at the club rooms, 235 Post street, Tuesday afternoons and evenings. October 2, 9, 16, 23, and 30th.

MEETINGS OF TUESDAY, OCTOBER 2D.

AFTERNOON SESSION—CLINICS.

Clinic No. 1.—Dr. C. M. Carr demonstrated his method of inserting an anchored, adjustable and removable denture in the mouth of Dr. W. J. Younger.

Clinic No. 2.—Dr. Russell H. Cool presented a case of necrosis and extensive periosteal inflammation in the inferior maxilla extending from the angle to near the symphysis.

EVENING SESSION—DISCUSSION.

Dr. Lundborg.—I appreciate the operation of Dr. Carr very much, and consider it a great revolution in prosthesis. It is certainly novel and valuable. I think there is no doubt but that it will serve as a most excellent denture, and when patients become familiar with it it is destined to have a permanent place in prosthesis.

Dr. Cummings.—I regard Dr. Carr's method as a wonderful advancement. We are all familiar with the patient's distaste for "plates" which cover the palate, and more especially in the case of sensitive mouths.

Dr. Greenlaw.—I had the pleasure of witnessing part of Dr. Carr's operation. It being a new departure in prosthetic dentistry, it is hard to criticise. I should judge it is exactly the method to use in such a case.

Dr. R. Cool—I could not help wondering if Talbot knew of this, and if he would claim that it was but old ideas in new form. This is another jewel to adorn California's crown. While Dr. Carr is not a native of this State he is virtually one of us, as we were the first to recognize his method. I feel so sure of the success of these operations that I now have a similar case in preparation. The idea of inserting a movable and adjustable denture, attaching it to roots in such a way as to relieve the pressure, is an advancement, first on bridge work, and next on implantation. It is to implantation what bridge work is to the gold crown—the one making the other possible. I feel sure it will be recognized by the profession all over the country. To-night I am more pleased with it than ever before. Since our last meeting I have implanted two roots for a case like this.

Dr. Pague.—I have not anything but praise to offer for the clinic I saw this afternoon. It is a very excellent piece of work, and one that reverts very creditably to the ingenious mind that conceived it. I remarked last Tuesday that I had a case in view in which I am desirous of testing the method.

The idea is so thoroughly practicable that I am constrained to take it up in my practice as far as possible. The only thing that worries me is the durability of implanted roots, but relying on the experience of our worthy President I would try it.

Dr. Hart.—I feel very grateful for having been made a member of the club, even at this late day. My experience this afternoon satisfies me that you are doing good and unselfish work here, and helping each other to be more proficient. I saw enough of Dr. Carr's method demonstrated to show that there was merit there. It is like everything else: some succeed while others do not. It depends greatly upon the success of implantation.

Dr. Guisti.—I was greatly interested in Dr. Carr's work, and saw the two cases in his wife's mouth. I shall certainly embrace the first opportunity to try his method. I feel highly repaid in the clinic I watched to-day for becoming a member of the club.

Dr. Younger.—I did not see the operation, but felt a great deal of it. There was no pain whatever, and in regard to Dr. Pague's remarks as to the permanency of operation and denture, I say if it gives good service for three or four years we have done our duty. Why expect more? If the root is absorbed another can be implanted. So it is in bridgework, if it lasts three or four years, we consider we have done our duty. I think so much of the work now, yet, while at first I patted Carr on the back and said, "Good boy! that is an original idea," I could not for a long time believe it was of such broad and universal utility. In time it may do away with bridge and plate work.

CLINIC OF DR. COOL.

Dr. Younger.—This is something we are apt to meet with at any time. The patient was rescued from the physician's hands, and Dr. Cool, I am proud to say, has brought the man from almost death's door to perfect health.

Dr. Pague.—Cannot say anything other than admiration of Dr. Cool for the confidence he had in his ability to pull the man through. It was something unlike any experience I have had, but still reminded me very much of a case I have on hand, the lesion being in the superior maxilla. The treatment Dr. Cool is urging is all that could be expected. I suggest the use of lactic acid, which was so beneficial in the case previously referred to. I alternated with Churchill's iodine, and later used lactic acid only.

Dr. Lundborg.—It was certainly a serious case at the start, and I congratulate Dr. Cool on his success. I should suggest syringing the wound oftener than once a day. I have found in cases not so serious that this would alleviate the pain very materially. I presume some necrosed bone still remains. Carbolized water with tincture of iodine would be a valuable injection now.

Dr. Younger.—I had a case similar, though not nearly so bad, of nine month's standing. A gentleman came to me recounting the difficulties he had encountered and the pain he had suffered caused by an impacted inferior left wisdom tooth. I commenced treating him first by injecting carbolized water, followed by applications of iodine, then massage treatment, and in a half hour had tumefaction softened. At night it swelled again and I found the swelling caused partially by the first inferior molar, which I opened. As soon as I had reduced the tumefaction so that he could open his mouth, I applied cocaine, but still he was unable to open his mouth wide enough to apply the regular forceps, and besides the crown was not sufficiently above the margin of the alveolus so as to enable me to grasp it with a molar forceps. I, therefore, took long-beaked root forceps, grinding them down on a stone still finer and making them even more beaked in shape, I was enabled to wedge the beaks between the alveolus and the crown and get sufficient hold for extraction. It was impossible to lift the teeth, so I extracted by describing a curve that would have brought the diameter of a circle opposite the apices of the roots of the opposite molar. A discharge of pus and broken-down tissue followed the extraction of the tooth. Finding this continuing, I commenced treating by filling up the socket with lactic acid. The flow of pus ceased after four or five days, and I then simply continued washing out with carbolized water and applying iodine. The patient has entirely recovered. Dr. Cool is doing so well with his case that suggestions to him seem superfluous.

Dr. Cool.—Questions have been asked about the use of different medicaments. It makes no difference what wash you use, be guided by the inflammatory conditions. Lactic acid from now on may be used—guardedly at first. Owing to the close proximity of the large vessels, you must be very cautious. I would have liked had discussion touched on the opening I made externally.

Dr. Younger.—It was a very wise thing to do.

Dr. Cool.—Nature must be depended on in such cases. I was waiting for the exfoliation of bone to take place.

Adjourned.

MEETINGS OF TUESDAY, OCTOBER 9TH.

Clinic No. 1.—Dr. H. D. Boyes. The use of kalium natrium in the treatment of putrescent pulp canals.

Clinic No. 2.—Dr. Russell H. Cool. Amputation of the buccal root of first superior left bicuspid in treatment of alveolar abscess.

Clinic No. 3.—Dr. J. A. W. Lundborg. Exhibit of case of impacted third inferior molar.

DISCUSSION—DR. BOYES' CLINIC.

Dr. Cool.—The results of kalium natrium treatment are for the most part to be learned from the future. However, we can and should discuss its chemical action, but this I will leave to Dr. Hodgen. I am not so skeptical of the virtue of the preparation as I am apprehensive of trouble that may result from awkwardness. If particles were to be crowded past the foramen I would expect serious trouble. Dr. Boyes demonstrated that he was well able to handle it, and had had considerable experience with it. I have used it some, but have not been satisfied with it.

Dr. Hodgen.—My experience with kalium natrium is practically *nihil,* having used it to no great extent. I made some once or twice for the college and used it there. Kalium natrium, according to Dr. Schreier's formula, is an alloy of sodium, composed of two parts sodium and one part potassium. The alloy, like its component elements, has an intense affinity for oxygen, and in the presence of moisture—it being a simple mechanical mixture—the metals each replace an atom of hydrogen in water and form K HO and Na HO. Owing to the excessive caustic property of these compounds the alloy is indirectly a germicide. The preparation, as I take it, is desired especially to be adapted to the putrescent contents of pulp canals. Introduced into such it unites with the water of decomposed albumen, forming K HO and Na HO, as mentioned previously, and this result with the principal components of albumen, fats and fatty acids, to form soaps. Rendering the albuminous substances soluble the contents of the pulp canal is easily removed by syringing with warm water. If care is taken not to use too great a quantity of the alloy at a time I do not believe there is need to apprehend any sort of danger. As to crowding it through the foramen, that is out of the question, for if there be any use for the remedy at all it will have served its purpose long before it reaches the foramen by coming in contact with the moisture in the larger end of the canal. I can imagine that such a mixture would have its place in dental medicine, but it cannot be relied upon as a sole remedy no more than any one of the scores we already have for various uses. If dioxide of sodium is at hand I should prefer it and expect the same chemical results with additional ones of greater value.

Dr. Boyes.—The case I presented was an exceedingly simple one, intended only to show the cleansing property of kalium natrium. I should much prefer to demonstrate it in the case of a superior molar. I do not regard potassa as a coagulant, though it may cauterize; but its action is not discontinued by the cauterized film produced; it continues to penetrate the tissue. It is certainly no slow means of eliminating the putrid contents of the pulp canal, and will stand thorough trial.

DISCUSSION—DR. LUNDBORG'S CLINIC.

Dr. Cool.—An impacted wisdom tooth is a case that requires some study to secure best possible results. This particular case is one where it was impossible for the inferior tooth to erupt on account of the pressure of the elongated superior. Articulation in these cases is something that must always be investigated. Here we have an inferior tooth impacted with the superior corresponding tooth, pressing down and impinging on the soft tissues. In such case I deem it necessary to remove the superior tooth.

Dr. Pague.—I can say but little of the clinic. Examined tooth and think the suggestion of Dr. Cool the most reasonable; the extraction of the superior wisdom tooth, which is evidently an irritant, if removed, I think all the inflammation that is there will be allayed.

Dr. Hackett.—I did not examine opening with an instrument, but I noticed an elongated wisdom tooth, and think this acts as an irritant to the tooth below. Dr. Cool's idea is very good.

Dr. Lundborg.—This gentleman has called at my office only twice. The first time to have me examine the case and state my opinion of the trouble, which he has endured for seven years. The whole side of his face had swollen, and the gum and soft tissue around the second molar very much inflamed and tumefied. I did not see him when he had that severe swelling and could not give my opinion of the trouble. I probed carefully through an incision that had been made by a physician, and noticed, in probing, a peculiar hardness, such as you find when striking a tooth. I suggested keeping the cavity open and syringing, which he has since been doing, but arriving at no definite conclusion as to what is best brought the patient here.

EXHIBIT OF DR. COOL.

Dr. Hodgen.—Was not present at exhibit of case, but Dr. Cool showed me the apex of the root amputated. I am forced to consider this heroic treatment for alveolar abscess, and because of the condition it leaves the root amputated, partially devoid of pericementum, I would fear the eventual exfoliation of the tooth.

Dr. Pague.—Think it was the wisest and only thing to do under the circumstances. The patient told me that the tooth had been in an abscessed condition for three or four years. I cannot see how amputation of the root is going to cause any more trouble than was already there. It calls to mind a case of my own. A left superior cuspid had mounted upon it a gold crown which had attached to a first bicuspid and a left central. In placing the crown had not been cut down sufficiently and the strain caused considerable inflammation, and finally death of pulp. I tore off the bridge piece and amputated the root, for the irritation had caused so much inflammation that necrosis had resulted. I then amputated about an eighth of the root, burred out the necrosed bone to size of a marble, and after washing thoroughly with warm carbolized solution I packed with iodoform gauze, which treatment I continued for three or four weeks, seeing patient every day or two until nature had filled the cavity with healthy granulations, and in the meantime I replaced a porcelain faced crown, attaching the central by a narrow strip of gold passing back of the lateral. The operation was more successful than I could have hoped for.

Dr. Cool.—First I amputated one-half of the buccal root of left bicuspid. In treating alveolar abscess in that region we are called upon to treat cases that resist our treatment many times. The treatment may be somewhat questionable; to me it is highly successful. When the membrane at apex of root has been destroyed. I do not hesitate to operate. This patient had been troubled for three or four years before coming to me. She tried several methods, which failed.

Discussed further by Drs. Greenlaw, Morffew, Hackett, Cummings and Carr. Adjourned.

MEETINGS OF TUESDAY, OCTOBER 16TH.

Clinic No. 1.—Dr. L. A. Teague Amalgam fillings in devitalized teeth, operating on the inferior right second molar, cavity including portions of the distal, buccal and occlusal surfaces, with anchorage in the pulp chamber; also capped the pulp and filled a cavity, including the mesial and a portion of the occlusal surfaces in inferior right third molar. Material, Dr. Max Sichel's amalgam alloy.

Clinic No. 2.—Dr. W. J. Younger. Treatment of sensitive dentine with chloride of zinc.

Clinic No. 3.—Dr. Russell H. Cool. Amputation of the apex of the lateral root in treatment of an abscess in the incisive fossa.

Consultation case of fractured right central incisor; patient, boy, age 11. Presented by Dr. W. Z. King.

DR. TEAGUE'S CLINIC.

Dr. Carr.—I don't believe in filling a proximal cavity with part of the grinding surface involved entirely with amalgam. A combination filling has been my hobby for many years. Amalgam being hard, and more or less brittle, gives way on the grinding surface and decay will follow. If a large gold filling is inserted it necessitates too much malleting, and will endanger the life of the pulp where it is alive. Gold will give way at the gingival margin. The best filling I find is to fill with amalgam, let it harden, then with a fissure bur go all around and fill the trench thus made with gold.

Dr. Lundborg.—I would not use such a quantity of amalgam, I dislike it; it does not work satisfactory to me, and I can't think it the proper thing to put in the mouth.

MEETINGS OF TUESDAY, OCTOBER 23D.

Clinic No. 1.—Dr. M. A. Greenlaw demonstrated porcelain work with a Downey furnace.

Clinic No. 2.—Dr. C. M. Carr. Implantation and preparation of root for anchored and adjustable dentures.

Clinic No. 3.—Dr. Russell H. Cool. Chronic alveolar abscess. Treated by amputation of apical portion of anterior and posterior buccal roots.

DISCUSSION—DR. GREENLAW'S CLINIC.

Dr. Greenlaw was highly complimented upon his admirable clinic by all.

Dr. Lundborg said he used the same process, and was in the habit of baking his porcelain inlays in the furnace, using 120 gold as a matrix, instead of platinum. Suggested that the tooth be slightly bleached before selecting the color for the inlay.

Dr. Cummings said he had been using this method successfully for four years, and was much gratified with the results of his work.

Dr. Cool spoke especially of the cleanliness of the porcelain work.

Dr. Greenlaw said when he desired to give the porcelain tooth the appearance of having a gold filling in it; he used Roman gold, two or three coats; after baking, polished and finished off to proper shape, and thought it would wear for a considerable length of time.

DR. COOL'S CLINIC.

Dr. Younger.—The treatment of Dr. Cool I like better than replantation. Of all the cases of replantation, implantation and transplantation, replantation has the most failures. Dr. Cool simply removes the diseased portions of the root, without disturbing the healthy, and I think with every chance of success; only one cannot get at the apex to take off the sharp edges, as can be done after extraction.

MEETINGS OF TUESDAY, OCTOBER 30TH.

Clinic No. 1.—Dr. F. C. Pague. The Bite: a manner of securing the proper articulation of full superior and inferior dentures.

Clinic No. 2.—Dr. C. M. Carr. Implantation: root of superior left bicuspid prepared for an adjustable and removable denture (a completion of previous clinic).

DISCUSSION.

Dr. Pague explained that the object of his clinic was to secure the proper and normal position of the jaws, and thereby obtain an articulation of the artificial dentures, which would not only be practically and theoretically correct, but most easy and comfortable to the patient. This was accomplished by small blocks of wood waxed to superior and inferior articulation plates. In this manner he was enabled to see the proper length of the lips, and then by anterio-posterior and lateral movements acquaint himself with the normal movements of the jaw peculiar to his patient.

Adjourned.

OAKLAND DENTAL CLUB.

THE Oakland Dental Club held its regular monthly meeting at the office of Dr. J. M. Dunn, Thursday, November 15th. A paper was read by the President, Dr. Russell H. Cool, entitled, "Pyrozone and the Peroxides of Hydrogen and Sodium," and discussion followed by members of the society.

SOUTHERN CALIFORNIA ODONTOLOGICAL SOCIETY.

THE tenth annual meeting of the Southern California Odontological Society was held in the Chamber of Commerce, Tuesday, November 13th.

Papers were read by Drs. Sylvester, Price and Parker. Ten new members were admitted, and the following officers elected for the ensuing year: E. L. Townsend, President; C. V. Baldwin, Vice-President; F. M. Parker, Secretary; R. W. Whomes, Corresponding Secretary; L. W. Wells, Treasurer; L. N. Bedford, Librarian.

EDITORIAL.

CHEMICAL NOMENCLATURE.

A CERTAIN chemical preparation company has astonished us all with the information that it "has changed the name of *their* product *from* H_2O_2 *to* the true chemical name, 'hydrogen dioxide.'"

Where is the change? We do not catch it. H_2O_2 is the formula created by definated chemical combination, and has been variously named: hydrogen peroxide, hydrogen dioxide, hydric oxide, peroxide of hydrogen, dioxide of hydrogen, oxygenized water, ozonic water, hydrozone, pyrozone, aqua hydrogenii dioxidi, and what else? Compounds that demonstrate any real therapeutic value are immediately taken up by all sorts of manufacturing and "concocting" concerns, and each presumes to give it a new name. These names are chosen for fancied euphony or attractiveness and serve the manufacturers as trade-marks. So, notwithstanding the many names, hydric oxide has been buried beneath the formula H_2O_2 remains the same.

It is a fact to be deprecated that chemical compounds are to be so burdened with commercial and pharmacal names. Young students in chemistry are dismayed and bewildered at what they are compelled to learn in order to read the ordinary text-book or journal intelligently. It is enough that chemists of almost every generation have sought to change the nomenclature, but it is ridiculous that so-called scientific men will crowd their text-books with a conglomerate and incongruous lot of spellings—prefixes, suffixes, system of formulæ and what not.

There is no reason for using the older nomenclature *per* and *proto* for *ic* and *ous*, binaries. The prefix *hyper* was contracted to *per* that it might not be mistaken for *hypo*, and the two used respectively to indicate a greater or less quantity of the negative element in proportion to the positive than in the *ic* or *ous* compounds; it, therefore, is obvious that if the prefix *per* be used the reader may confound such a compound with the *per* —— *ic* binary. Since it has no value, is only a stumbling block to beginners, and is seldom used in contradistinction to *hypo*, why not drop it?

In all cases where a mistake would likely occur a binary *may* be named by prefixing the Greek numerals—*mon, di, tri, tetra,* etc.; but where it is possible the one method should be adhered to, and such prefixes as *proto, per* (when used to indicate more than *proto*), *sub* and *sesqui* should be discarded for other than exceptional cases.

The two oxides of sodium are properly known as sodium monoxide and sodium dioxide, and the latter is improperly called the sodium *per*oxide.

THE Medical Department, University of California held its graduating exercises at Odd Fellows' Hall, Tuesday evening, November 20th. The graduating class numbered 31, and was led by Miss Mary E. Morrison. Two recent graduates of the College of Dentistry, University of California, were also among the number—Drs. James G. Sharp and C. B. Root. The Alumni is proud of these young men, and expect much from them. To him whom much is given much is expected.

Dr. Sharp has been appointed assistant in physiology and histology in the Dental College, and his time for the next year will be divided between his duties there and at St. Luke's Hospital, where he is to be an inturne. Dr. Sharp is an exceptional and exceedingly popular young man, a good student, and will make a progressive and thorough instructor.

CORRESPONDENCE.

ARISTOL IN DENTAL PRACTICE.

EDITOR PACIFIC COAST DENTIST: In the September issue of your very excellent journal there is a paper addressed to the most distinguished body of dentists that has ever assembled on the Pacific Slope, purporting to contain a discussion of the subject of the immediate filling of pulpless teeth. The author of the paper seems to claim something like originality in the use of aristol in dental practice, as the following language taken from his paper would indicate: "I shall now call your attention to aristol. This may be new to many of you as a root-dressing and filling. At the present time I fail to find it mentioned in dental literature."

If the writer's researches in dental literature were confined to some of the old text-books, or to the journals of five or six years ago, I can understand how he failed to find aristol mentioned, but the paper is addressed to men who are supposed to read the journals fresh from the press, and to be thoroughly conversant with all that is known of the theory and practice of dentistry to date. It is remarkable that any one should go on record before such a body of men with the claim of originality in the use of this drug and at the same time admit that he did not know what had been written on the subject. Several of the dental periodicals, including the *Cosmos* and the *Items of Interest*, have, during the last four years not only mentioned, but discussed the therapeutic value of aristol in the treatment of those pathological conditions that array themselves about pulpless teeth. During the meeting of the Dental Society of the State of New York, held in Albany in May, 1891, Dr. Kirk read a paper on the subject, which was afterwards discussed by Dr. C. N. Peirce and others. The report of those proceedings may be found in the *Cosmos*, vol. xxxiii (1891) page 574. Other articles on the subject may be found in the same volume, pages 244, 363, 1029, and in vol. xxxv, pages 53, 669, 1232. Hence, to the man who reads, the sources of information have not been wanting.

The position taken in the paper to which I refer reminds one of that of a soldier who comes upon a field after the battle has been fought and the victory won and proclaims that he has heard none of the roar of cannon, nor the rattle of musketry during the conflict, but that with his own trusty blade and strong right arm he has won the field single-handed and alone.

He who publicly proclaims as new that which has been generally known for years comes dangerously near announcing himself as one not well informed.

Satis verborum, sed scientiæ parum. SUBSCRIBER.

EDITOR PACIFIC COAST DENTIST—Dear Sir: My attention has been called to an advertisement of Dr. Carr in the October number. Whilst I approve of Dr. Carr's denture and recommend it, the use of my name in business connection therewith was entirely unauthorized by me and done without my knowledge. Yours, respectfully, W. J. YOUNGER.

THE
Pacific Coast Dentist

VOL. II. DECEMBER, 1894. No. 12.

ORIGINAL COMMUNICATIONS.

LOOP ANCHORAGE IN GOLD FILLINGS.

BY DR. A. F. MERRIMAN JR., OAKLAND, CAL.

[Read before the Midwinter Fair Dental Congress.]

IN this busy world, where every art and science attains such perfection, the dentist must try to hold his own in the constant advance; and, if statistics are true, we are shoulder to shoulder with the foremost.

In this onward march, no doubt many an idea has been advanced without meeting any encouragement until, perhaps, it was taken up by some leader, who giving it a new light made it popular. And, too, how often have many of us suggested some simple method or contrivance which was taken up by others and improved upon from time to time until at last something of great importance was perfected.

The mechanism of any great piece of machinery is rarely, if ever, perfected in the model, and it is always deemed safer to first give it a trial. Consequently, in launching my little dental bark, if the judges find that it does not fulfill the requirements then possibly some one more learned in our profession will right me.

How many times have we read over and over how to fill a cavity with gold, and the best means of anchoring the filling. How often have we wondered why another man would again write upon the same subject, when every detail seemed so perfectly exhausted that we need never want any more ideas upon

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NOTE.—The editor and publishers are not responsible for the views of authors of papers published in this department, nor for any claim to novelty, or otherwise, that may be made by them. No papers will be received for this department that have appeared in any other journal published in this country.

the subject, since this was just what we wanted and had long been looking for. Perhaps it was what we were looking for at that time, and no better method did or does exist; but we are creatures of advancement, and even if some of our steps seem ridiculous at first glance those who are able to carry them to perfection do not think so.

The first advocates of cohesive gold were looked upon with suspicion by some of our old masters, yet did that deter the other more persistent members of our profession from pressing onward? Most of us remember how the rubber-dam was first received, and how many years it was before many of our best men could use it; when they did, simply on the anterior teeth. Now look what a blessing it is to all.

Gentlemen, I could elaborate more, in way of partial apology for offering something entirely new, but, instead, I will ask your forbearance while I describe my method of loop anchorage in gold fillings with some modification of same. The word "loop" is significant, and suggested the name to me. Of course in the ordinary run of fillings it would not be necessary or advisable to use such a plan, but there are places which I shall describe in detail:

1. A very large crown cavity with very frail walls, indicating amalgam or oxyphosphate. The patient is afraid that he cannot endure a long, tedious operation which would be necessary if an all-gold filling were inserted. And then look at the delicate walls; where would they be unless the greatest care was exercised? Here is a first place for loop anchorage;
2. In starting gold in large compound cavities;
3. Deep labial or buccal cavities;
4. Difficult cavities in porcelain teeth to start gold; perhaps one you have made of a groove form;
5. In fact, all cavities where they are to be lined with cement, this plan being used when thought best.

Now we will consider the *modus operandi:*

After removing most of the decay and weak points, cut the margins smooth, polish with suitable points and pumice and rinse thoroughly. Adjust the rubber-dam at this point, unless you prefer to start with it on account of the saliva. In this case polish the margins with sand-paper disks, as you can blow away the débris. The cavity is now thoroughly excavated and wiped with pure carbolic acid. If the pulp should be near, and any sudden pain result from pressure, it should be capped carefully before proceeding. Now we are all ready for our dextrous work in manipulating the cement, which should harden very quickly in this work. We suppose by this time the operator or assistant has removed all unnecessary instruments from the dental table and replaced them with a few well-selected pluggers. Do not have any unnecessary ones; the fewer the better.

Before adjusting the rubber-dam it is also essential that the operator should have noticed the diameter of the cavity, and should have cut several strips of No. 120 gold four times the diameter of the cavity one way, and one-half the other, and placed them on a napkin. The gold receiver, of course, should have the suitable cylinders of some standard gold (I prefer Williams' or Rowan's); also No. 30 for finishing, if you wish to carry it to perfection. In order to lose no time whatever have the spirit lamp ready, the plastic instruments at hand, and the cement on the glass slab. Turn quickly and mix with a good stiff flat spatula to the consistence of soft putty, so you may roll it between the fingers into a rope.

Now is the all-important moment, and one that should not be lost sight of in order to lose no time whatever. With a small pointed spatula carry the cement to the cavity, quickly pressing it thoroughly into place until one-third of the cavity at least is filled, allowing the cement to line the walls perfectly, but not to come to the margin if possible. While it is still in a plastic condition, quickly seize with the pliers a strip of No. 120 gold, place it over the cavity, letting the ends protrude equi-distant; also be careful to place in the center and hold it with a suitable instrument with the left hand. Then with an egg-shaped burnisher, to correspond to the size of the cavity, quickly press the strip of gold into the plastic just a little; take more of the cement which is still on the slab and put it into the cavity, allowing it to press against the walls in all directions. Care should be taken not to get in too much, and do not allow it to remain against the margins of the cavity, which might happen in one's hurry.

If this part of the work has been done with the proper understanding of how long you can keep your cement in proper working condition, you will find that your plastic is still a little soft, and by being dextrous you can press a gold cylinder, corresponding to one-half the diameter of the cavity, slightly into the cement. Hold this with an instrument with your left hand, then fold one of the strips of No. 120 gold down upon this; condense with hand-pressure, and then the opposite strip, folding it across upon the last strip of gold, with perhaps another cylinder intervening; then condense thoroughly. If more strength be required, resort to two or three strips of No. 120 gold in the loop; and if the opposite wall should be quite frail and difficult to slightly groove, then resort to a double loop. This will give four ends to bring down, which is especially desirable if you wish to contour a large compound filling. But I would not recommend this plan in contouring, except for starting when the cavity is so sensitive that it would be difficult to get either groove or retaining pits. These cases are rare. In fact, this method should not be abused by using it when it is not called for. The usual methods are better in the majority of cases.

Now your great hurry is over and you can breathe easier, as it is a critical moment if your cement should harden too quickly, thus necessitating the work to be repeated.

Remove with an excavator any cement that happens to be against the margins, and blow it away with a hot-air syringe. Your work up to this point should not occupy more than ten minutes from the time you began with your first cement until your gold strips are folded down. The cavity at this point should present one, the depth of which is equal to the thickness of the enamel of the tooth. With this foundation of oxyphosphate and gold you proceed to fill in the usual way.

A modification of the loop can be used in irregular cavities, if the entire cement is put in the desired depth and then pressed away, inserting one strip of gold and then pressing cement against it. You will find it works admirably. I am beginning to favor Sansome's cement, as it does not harden as quickly, and is more pliable.

The advantages I claim in such fillings as described are:

1. Perfect filling in half the time;
2. The less metal inserted in a tooth the better;
3. As it is so often desirable to line cavities with oxyphos-

phate, it is proper to take advantage of the retention that may be made in it;

4. Extensive cavities can be filled before your patient or yourself are worn out.

The loop in this filling [showing the section of a tooth prepared and filled after his method] is made from rolled gold No. 30, Stubbs' gauge. I would recommend it in all cases requiring contour and all large fillings where strength is required; a gold wire (No. 30), however, may be used instead.

ORTHODONTIA.

BY DR. HERBERT C. MILLER, PORTLAND, OR.

[Read before the Oregon State Dental Society.]

IRREGULARITIES and deformities of the teeth and jaws, their causes and correction, is a field so vast, so far-reaching in its proportions, that it is impossible to do justice to it in a single paper.

Orthodontia increases in interest as we accomplish results. It demands more of our earnest attention than has been given it in the past; and I predict the near future will record some of the most gigantic advances ever made in this branch of our profession.

The days of bunglesome, filthy, tortuous rubber plates, with uncertain, unreliable elastics, springs and wedges, are largely a thing of the past. We are refusing to adopt the methods practiced by our fathers and grandfathers; things that were good enough for our predecessors are not good enough for us to-day. A better light has appeared and we are witnessing the dawn of a brighter day. We are adopting methods, principles and devices that are better suited to our use, and the results are inspiring.

So many appliances and so-called methods have been invented I can hardly hope to offer anything entirely new. If by appropriating that which seems to be the best from the various methods and appliances, and presenting for your consideration its practical application to subjects which have come under my care, I can assist in inspiring hope and confidence where despair has reigned, and arousing new interest, the mission of this paper will have been accomplished.

To develop symmetry and beauty where distortion and ugliness prevailed; to bring order out of chaos, and to develop æsthetic contours of the face, which is accomplished by proper application of force to the teeth and underlying, bony structures is no mean ambition.

To the person able to cope with the mechanical obstacles this class of practice is extremely fascinating. When contemplating a case of irregularity we should bear in mind that the crowns of the permanent teeth in the jaws of a child six years of age are as large as they ever will be, with the exception of the third molars, the dentinal caps of which do not appear until about the twelfth year, and the roots are still to be formed. The jaws will continue to enlarge and expand until mature growth, which varies from eighteen to thirty-two years of age.

The central incisors lie anterior to the laterals, and the canines, which develop much later, are almost beside the central incisors, but higher up in the alveolus and external to the lateral incisors and bicuspids. As the roots of teeth develop their crowns are pushed to the surface, and at this time slight obstruction may change their course from the normal and result in an irregularity.

The canines erupt at from eleven to fourteen years of age, the lower ones generally in advance of the upper. When their roots are fully grown they are longest and firmest in their position of any teeth in the mouth. If the teeth on either side of them are extracted, the remaining teeth back of them (or incisors, if in front,) move or tip over toward the canines, while they remain nearly stationery throughout life unless powerful force is used upon them.

The teeth in the lower jaw develop first, and ought to guide the upper teeth into their right position. The lower molars and bicuspids incline toward the tongue. The upper molars and bicuspids are guided in their course by contact with the cusps of their antagonists, the outer cusps of the upper setting outside of the row of cusps of the lower.

Guilford, in his book, sets forth some of the principles to be guided by in correcting irregularities, which contain so much truth that I feel justified in quoting them:

1st.—The greatest good can be obtained from any force only when it is exerted in a direct line with the movement desired.

2nd.—The force used must be sufficient, but not excessive; and not to be abruptly applied.

3rd.—The points of resistance and delivery of the force must be fixed points.

4th.—The resistance at the point from which we exert pressure must be greater than the resistance to be overcome by the pressure.

5th.—It should always be seen to in advance that there is sufficient space to accommodate the tooth in the new position it is to occupy.

6th.—Pressure may be either constant or interrupted.

7th.—Pressure should be exerted as nearly as possible in a line at right angles to the long axis of the tooth.

8th.—Always avoid, if possible, extracting any of the six anterior teeth in the superior arch.

9th.—In the lower jaw one of the incisors may sometimes be extracted to gain space.

10th.—Back of the anterior teeth, if all are equally good and one must be removed, select the one nearest and posterior to the one out of position.

11th.—If a tooth other than the one nearest to that in malposition be defective, and not too far distant from point of irregularity, extract it instead.

12th.—If a tooth must be lost, either to allow a more important one to fall into line or to create space, it should be done without delay to accomplish the best results.

13th.—If a tooth must be removed on one side to obtain space, it does not necessarily follow that its mate on the opposite side should also be extracted.

14th.—Where there is disparity in size between the two jaws, and two teeth need to be extracted from the more prominent one, it would be a serious mistake to extract also the corresponding teeth in the other and smaller jaw.

15th.—Needless extraction should be carefully guarded against.

16th.—If a crowded arch calls for, or will admit of, expansion to advantage, do this in preference to extracting.

These rules should be carefully studied and understood by all who attempt regulating teeth. Impressions of both jaws should be taken and two sets of models made, one for use in constructing the appliance, and the other for preservation and reference.

Most cases require careful study, and plaster models will greatly facilitate determing the best course to pursue. Points not seen at first will be discovered by careful study. If possible, the patient should be made to appreciate the importance of the work, and their hearty co-operation enlisted.

Then the question of patient's physical condition is to be considered, and may cut a large figure in deciding the course to be adopted. The age at which a great deal of the regulating is done occurs, unfortunately, when the patient is under great mental and physical tension. We should, therefore, observe caution in applying extra strains by our regulating appliances.

In probably enough exceptions to prove the rule extraction may seem necessary, and should only be resorted to in extreme cases and after careful deliberation. Any treatment which proposes to sacrifice mastication for an effect pleasing to the eye is based upon a wrong understanding of the functions of the masticatory organs.

Under no consideration should we consent to part with any of the sixth-year molars until after mature growth, otherwise destruction of almost the entire grinding surfaces of the remaining teeth for mastication upon the side where the molar was removed may result.

The external contours should be closely studied, and correction of facial deformities be one of the principal aims. No appliance should be used that is uncertain in its action, or the result may be disappointment and disaster. The contrivance used should occupy as little space in the mouth as the service it has to perform will admit.

I prefer to use appliances that cannot be wholly removed by the patient, the action of which is positive and under my control. When I was at college we were taught that it was impossible to move the ends of the roots. This idea was incorrect; modern science has proven it to be erroneous.

Dr. Farrar says: "The secret of effecting a lateral movement of the roots of the teeth lies in relatively fixing the antagonizing ends of the crowns while the force is being applied at their necks."

This principle can be applied to the inner and outer movements of the roots as well as the lateral, or the principle may be reversed by fixing the necks of the teeth while force is being applied to the antagonizing ends of their crowns.

My first successful attempt at moving roots was in 1888; subject, young woman, nineteen years of age; central incisor widely separated. A narrow metal band was made on the principle of a loop matrix and placed around the central incisor teeth at their necks. By tightening this band the teeth were made to slowly approach each other at their cutting edges until the band was in danger of slipping off. A wedge was then placed between the crowns as close to their cutting edges as possible to prevent their coming closer together; and the band again tightened when the roots began to approach each other. To force the roots and adjoining bone of the anterior teeth forward Dr. Case, of Chicago, constructs an apparatus after this fashion: Wide bands of German silver, from five- to seven-thousandths of an inch in thickness are fitted to the crowns of the anterior teeth near their gum-margin, and perhaps extending a little beneath on the proximal sides; perpendicular bars, bent to fit the outer surfaces of the crowsn, and extending from their cutting edges to about one-eighth of an inch above the gum-margin, are soldered to the bands. The upper ends of these bars should stand out free from the gum and be slightly thinned or flattened so as to be more easily bent around a rigid bar, which encircles the front and passes back through anchorage tubes attached to the posterior teeth. This bar, which should be very rigid, is drawn without annealing from No. 12 German silver wire to No. 18 E. S. G. The ends are threaded in the No. 4 hole of a Martin screw plate. Nuts should be screwed on to work at the anterior ends of the tubes, and these placed in the unclasped ends of the upright bars, which have been kept open to receive them. Another much smaller bar rests in depressions in the upright pieces near the cutting ends of the teeth. The ends are threaded and passed through tubes soldered to the anchorage bands on each side below the power bar-tubes, with nuts applied to work posteriorally to the tubes. To reduce a prominence by forcing back the roots and alveolus of the anterior teeth, a similar appliance is made, excepting that the bands should be fitted to the incisors near their occluding ends, instead of their necks, so as to furnish a more rigid bearing in the changed application of force. The lower ends of the perpendicular pieces should clasp the fulcrum bar, and the nuts should be reversed in their relative position to the teeth.*

I do not believe that the bones and alveolus of youth remain stationery, and are absorbed away in front, and built in behind the moving teeth, but are amenable to pressure. While absorption and building-in does take place, the greater portion of tissue in which the teeth are imbedded moves with them, unless prevented from doing so. Gentle pressure and slow movement would favor movement of the root through the tissues by absorption in front and filling in behind; while more force would be required to change the form and contour of the parts.

CHOICE OF MATERIALS FOR CROWNS.

BY CHARLES E. POST, D.D.S., SAN FRANCISCO, CAL.

[Read before the Midwinter Fair Dental Congress.]

A CROWN, to be a success on any of the teeth anterior to the molars, must be strong and well-matched as to color and size, and must be firmly fixed.

I do not believe in using all-gold crowns on the bicuspids or any of the anterior teeth, except in rare cases, where, owing to some idiosyncrasy of the patient, the pulp cannot be destroyed, nor the buccal or labial surface ground away sufficiently, without exposing the pulp, to allow a porcelain front on the artificial crown; in these cases an all-gold crown is indicated, or preferably a jacket crown with a porcelain face.

A practitioner, speaking of all-gold crowns on the bicuspids, sometime ago, said they were easier to make, that he could talk his patients into thinking they were artistic in appearance, and he did not think it worth while to put himself to the extra trouble of making a porcelain-face crown.

I do not agree with him. I think it but little short of malpractice to put on an all-gold crown, particularly in a lady's mouth, on any of the teeth anterior to the molars, when by but little more labor a much more artistic and equally as serviceable porcelain crown, or at least a porcelain-faced crown can be adjusted, thereby matching in color and size the adjoining teeth.

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* See Dr. Case's article on Facial Contours in the Practice of Orthodontia, Vol. I, page 219, PACIFIC COAST DENTIST.

How often do we see an interesting and beautiful face marred, as soon as the lips are parted, by a glaring gold crown on one or all bicuspids—yes, and often on the incisors.

If we are to be mere mechanics, and not artists, then there is an excuse for all-gold crowns on the anterior teeth; but if we are to be artists as well as mechanics, it behooves us to imitate nature as closely as possible, and that we cannot do with gold.

As to the best form of porcelain crowns, we must be governed by circumstances. With a good, strong root, a Logan crown, if accurately fitted, makes a very serviceable and artistic crown. An objection to the Logan, and other ready-made porcelain crowns, is that the dealers do not carry as large a stock of them as they do of plain teeth, and we do not have as great a variety in size and color to choose from; another is, that we cannot always get one that will cover the end of the root. In such cases we must find some other means to entirely protect the root from decay.

I prefer a crown with a band and cap. In Evans' "Crown and Bridgework," page 90, third edition, is described Dr. Stowell's method of attaching a band to a Logan crown. This is a much better way, I think, than Dr. E. L. Townsend's method.

I consider the best crown to be one made by baking on a porcelain back to a facing with pin in position, and the Downie furnace seems to be the most simple and convenient of any yet introduced for this purpose. Dr. Downie describes his method of making crowns as follows:

"Dress up the root even with the gums, and prepare it in the usual manner for crowning. Take measure of root with No. 28 wire; cut and straighten wire. Take a strip of platinum of sufficient width for band; lay wire on platinum and mark length. Cut band 1-32 of an inch longer than the mark; bevel both ends; lap to mark and solder with pure gold. Fit band to root, letting it extend nicely under the free margin of the gum, and down beyond the surface of root about as much as it extends above. Remove band and clip out V-shaped cuts all around, which, when the band is replaced in position, will allow the points to be bent down over root. Select plate tooth; take square iridio-platinum wire of sufficient size for post; taper one end and flatten the other with hammer a little wider than space between pins of tooth; file notch in each side, and, placing between pins, bend them over. If the bite is close, grind pins down to give room. After fitting tooth to position, by bending post, if necessary, or grinding base of tooth, put napkin in mouth, dry root and adjacent parts, and, warming a small pellet of sticky wax, place it on end of root, shove post through it, and shove tooth up to position. Press wax up against back of tooth, and see that the articulation is correct.

"Carefully remove by loosening band around with hoe-shaped excavator. Remove wax from around post where it has drawn down into the canal. Mix silex and plaster, in the proportion of two parts plaster to three parts silex, and fill the band with the investment, building up slightly around the post. After investment sets, boil out wax; back up with porcelain body and put in furnace and fuse; add on more body, building up over band on the anterior surface to conceal band, and fuse again. We now have a finished crown. Ordinary teeth for vulcanite work can be used in making this crown if desired. When they are used, the post should be soldered between the pins with pure gold."

My reasons for preferring crowns with a band are that they seem to be stronger, preserve the root from decay, prevent its splitting from undue pressure, and the crown is more firmly fixed.

The main advantages of a crown made by the Downie method, over a soldered crown, is that it is cleaner, as the joint between the facing and cap or band is perfectly tight, making it impossible for any moisture to get around the crown; they are stronger, for the backing is fused to the facing, so that all the strain does not come on the pins; they are easier to make and finish than a soldered crown, as they require no polishing after being baked.

Many urge the objection that bands irritate the gums and periodontal membrane, causing recession of the gum and hard tissue, and in consequence the loosening of the tooth, or at least the exposure of the band. Let me quote Dr. Evans on this point:

"The principal argument against ferruled or collared crowns is that they are productive of irritation to the periodontal membrane, ultimately causing its absorption and the exposure of the collar. This would be theoretically and practically true of a rough or porous substance encircling the root, or of an imperfectly and unskillfully adjusted or cemented ferrule or collar, which would, by its presence, hold a position analogous to a calcareous deposit; but no such comparison can be fairly made with a perfectly fitted collar, forming at its edge a smooth and imperceptible union with the sides of the root, and presenting a uniform and benign surface to the investing membrane.

"In case of perfectly adapted collars, when any irritation of the membrane exists, it will be found to result from such causes as usually produce it when the natural crowns are present—namely, dental concretions.

"A tarnished and unclean condition of the surface of the gold of the collar will produce irritation of the membranes, which is a matter independent of the collar itself, and easily remedied by cleansing and polishing the surface.

"Where an acid condition of the secretions of the mouth exists, a collar of platinum or iridium, or one of gold and platinum, crown-metal, presenting the platinum surface, is suggested in preference to gold, as these metals will not be affected but will constantly present an untarnished surface.

"When evidences of a tendency to pyorrhea alveolaris exist, a collar adjusted to support bridgework should be extended well under the gum-margin, or the edge of the collar kept considerably above it.

"Where pyorrhea alveolaris is present, a collar of fine gold, properly fitted and extended to the line of the pericementum, has often a tendency to retard the disease, as calcareous deposits do not adhere to the smooth surface of the gold so readily as to the dentine."

In the light of the foregoing opinion of Dr. Evans, I think we may safely make use of crowns with bands, provided always we have it tightly-fitted. At least, let us all strive to do away with the all-gold crown on the teeth anterior to the molars, thus proving ourselves artists as well as mechanics.

HOW TO INDUCE OUR CHILDREN TO CLEANSE THEIR TEETH REGULARLY.

BY JNO. C. M'COY, D.D.S., SANTA ANA, CAL.

[Read before the Midwinter Fair Dental Congress.]

AMONG intelligent parents who are alive to the best interests of their children, the question of training them in the care of their teeth is not only considered a very important one, but also a very difficult one to solve.

Many careful mothers ask me the question: "How can I induce my child to attend properly to his teeth without continual prompting?"

The best answer I can give is to tell of a plan I have adopted in my own family of four boys, where I find it more satisfactory than any previous method. The idea from which the plan was developed was suggested by Dr. J. D. Thomas of Pasadena, formerly of Detroit, in a talk before the Southern California Odontological Society on this subject.

The first thing to do is to supply the children with the necessary appurtenances with which to do the work. Medium brushes, both in size and stiffness of bristle, pleasantly flavored tooth powder in a wide-mouthed bottle, so the brush can be dipped into the bottle, and last, but not least, plenty of *water*, and encourage them to use water freely in cleansing their mouths. Each child should have a place, both safe and convenient, in which to keep his brush, powder, etc.

Children should be taught the use of the brush as soon as all the temporary teeth are erupted, and, if the parent is faithful to the trust, at four years old the child will take the care into its own hands, with necessary encouragement and instructions on the part of the parent.

To induce my boys to clean their teeth regularly, I offer a reward of one cent for each time, and require them to clean them three times a day: first, when face and hands are washed on rising in the morning; second, immediately after the noon meal, and third, just before retiring, urging them to special care and thoroughness at this last cleansing. Thus, if they are faithful, they receive three cents each day and an additional ten cents at the end of each month, making $1 for thirty days; but if neglectful they forfeit one cent for each time omitted. The account is balanced at the end of each month.

The best way to keep the account, and at the same time teach the children system, is to tack up in the bathroom, or wherever they clean their teeth, a sheet of paper with thirty lines (one for each day of the month), with pencil attached. The child can make a mark in the proper line each time they cleanse their teeth, and at the end of the month the account is easily reckoned.

The most pleasant part to the child is pay day, and this should not be neglected. Balance the books carefully, and pay promptly, and allow them to use the money as they choose. I have not found it difficult to encourage them to spend it for some useful article or enjoy it in some innocent pleasure.

My experience in adopting this plan has been most encouraging, and if in this way I can induce them to care for their mouths so that they may be possessors of that most useful adornment, a fine set of teeth, I shall feel most richly repaid.

They are taught that scale, or animalculæ, gather in a mouth and on teeth that are not cleansed, and that the only way to keep the horrid creatures (we call them bugs in the citrus belt) off the teeth is to brush them frequently.

Teach the child disgust for uncared-for teeth and half the battle is won.

Not many mornings ago I was somewhat shocked and very much amused on entering the bath-room, where my four-year-old hopeful was scrubbing his teeth with powder and *hot* water, hear him exclaim in the most triumphant manner: "Papa, I'm scalding the bugs!"

Hoping that the few simple hints given in this paper may be of use to you and your patients, I leave the subject with you.

CONSERVATION OF INTERDENTAL SPACE.

BY E. A. LUNDY, D.D.S., HONGKONG, CHINA.

[Read before the Midwinter Fair Dental Congress.]

As I write this paper on board the steamer Empress of Japan in the China sea, I hope you will not expect much at this time. I wish to show that while it is impossible to meet with you I am in sympathy with your efforts, and while I would under the circumstances only be able to contribute the widow's mite, yet I think you will receive it in the spirit with which it is given, and not criticise it from a literary standpoint.

There are many ways in which the interdental spaces are very much irritated or entirely destroyed. I will first mention that of unnecessary and useless extractions which some of our profession resort to, in order to insert artificial substitutes; and the dentists who practice this, as a rule, are not at all careful in fitting the teeth on plates in their places, thereby causing a breaking down in a measure of the gingival margin, and quite often absorption of the process to such an extent as to cause the loss of the adjoining teeth. We should hesitate a long time before extracting, and try every means of saving the natural teeth, and more especially should it be with the first one to be removed.

The removal of the first tooth is similar to taking a keystone from an arch, the others sooner or later changing their positions so as to allow the food to crowd in and force away that portion of the gum that forms the festoon. In the removal of the food thus packed in between the teeth the patient, as a rule, will hasten the destruction of neighboring teeth in the manner in which he uses the toothpick, with which no one can properly cleanse the spaces, more often breaking off pieces and forcing them up between the teeth, and quite often under the gums. With our many styles of crowns it is rarely necessary to remove a root, unless it should be so badly diseased that it would not yield to treatment. In the adjusting of gold crowns we should be very careful that they fill the space sufficiently, knuckling to the teeth on either side, so that there will be no chance for food to work in.

In the placing of the Richmond crown great care should be given to fitting the band closely and not to force it too far under the gum on the root, and thereby create a pocket which would be a constant source of irritation. Many, I am sorry to say, are bringing bridge-work into disrepute through their careless fitting of the pieces, making it a constant irritant to the soft tissues.

As to inserting fillings, it requires a little more time to properly contour a tooth so as to conserve the space. But are we not rewarded when we keep the gingival margin intact? What a disgrace it is to any reputable dentist to insert a large gold filling only with a view to the closing the cavity in the tooth, and leveling it off as many do to hasten the operation. While such a filling may arrest the decay in the tooth it is the cause of a destructive influence just as fatal to the tooth as caries would have been, with this difference that it may be slower in its action.

Many shield themselves in such work by claiming that the tooth was too soft, or too brittle, to give it the proper contour. But it is very easy to contour a filling in a weak tooth, so that it will conserve the space and yet help to retain the filling. The indiscriminate wedging which some resort to is often fatal to the dental matrix, and I consider it useless; I much prefer the immediate separation, and find that my patients much prefer it to the cotton, and worse of all rubber wedges many use. I have used them all, and find that the tooth is much less sensitive than when it has been irritated by prolonged wedging.

And how often you will have a patient come in with something less than a bale of cotton forced up between the teeth, saying that your wedge came out, that he put this in, and by so doing had forced the gum away to such an extent that it never would return to its natural condition.

There are many other conditions in connection with this paper which we might mention, but as Neptune is beginning to roll us around rather carelessly, I fear I will have to refrain.

Hoping that you will, under the circumstances, receive this as an apology for a paper, accept my best wishes for a successful convention and kind regards for my friends on the coast.

EXTENT OF RECUPERATION IN DENTAL TISSUES.

BY DR. W. E. BURKHART, TACOMA, WASH.

[Read before the Midwinter Fair Dental Congress.]

IN the consideration of pathological conditions we are called upon as a matter of necessity to treat them in relation to, and as a departure from, a hygienic or physiological standard. In searching for relief from pathological phases we must first acquire a full and correct understanding of the anatomy and normal functions of the part. If we trace step by step the degenerative process we shall then, by reversing the conditions, be better able to assist nature in building up again the losses that have been sustained. After making ourselves familiar with the normal conditions, and as we take in hand the work of recovery of diseased tissue, we must keep in mind that all medical and surgical treatment possesses no curative virtues of itself, but is an effort on our part to present the most favorable conditions for nature to do the work of repair. This is recuperation or recovery. In such a busy occupation as dentistry mere theorizing is profitable only for the development of latent talent, and what we need more is the discussion of theories from which we may make practical deductions. I will therefore confine my remarks to such as will demonstrate practical conclusions. Whatever may be our theory of dental caries in detail, we know that all destructive agents of tooth structure proceed from the external surface of the tooth. The first substance to be acted upon by the attacking forces of the oral fluids is the enamel on account of its exposed position. This is the hardest of all animal tissues, and is evidently the provision of an all-wise creator, evolved in the eternal fitness of things to protect the less defensive tissue within. Nevertheless, with all this original armor so ingeniously distributed, its very coat of mail constitutes its weakest point of recuperation. Tissue originally highly organic is so heavily loaded by the deposition of the inorganic elements that it is vested with no ability to recover from injury, and only becomes a receptacle for products such as invite further destruction and more disastrous results to the newly exposed dentine beneath. Recuperative power is exercised by the more highly organized tissues, and is the result of a demand from the affected part for protection, and after the condition of the part has been made known through the nervous system, this is furnished largely through the vascular system. We may consider the enamel as entirely composed of inorganic material in so far as nervous impressions are concerned, and therefore lacks the first principle of recovery, and we must content ourselves with restoring lost portions of it with foreign materials entirely. With all our assistance nature cannot raise a hand to help herself. The next substance in the line of attack is the dentine, which is a very hard and ivory-like formation, but less dense than enamel, and the interstices of its tubuli filled with quasi organic material somewhat resembling protoplasm, and possessing no definite formation justifying its classification as containing either nerves or blood-vessels. Here we begin to develop attributes of organized tissue, for by irritation to the dentine there is developed sensation which clearly shows that an impression has been conveyed even though we are unable to explain the manner in which it is done. A tooth that has been prepared for filling, presenting normal live dentine, if left exposed to the action of the oral fluids for a few days, will often be found to have acquired a considerable degree of sensitiveness, though it may not have been sensitive at the time of excavation. This sensitiveness must be the result of some form of irritation to the exposed portion of dentine, and is a notification that destructive agents are at work. It is the office of the nerves to convey this intelligence, but in the absence of nerves the protoplasmic material present must be regarded as conveying these impressions to the pulp, from which they can be transmitted in the usual manner.

When we come to the question of recuperative power in dentine we must decide yes in some respects, and no in others. In dentine not actually destroyed there is this function to a limited extent, but in portions missing art must restore with foreign material the same as in enamel. And here will be noticed in tissue not yet dissolved defensive action against destructive agents, by notification through the medium of sensation, that all is not well and there is need of reinforcements in the affected location. In tissue diseased but still possessing a considerable degree of vitality there is often a decided recovery to the normal standard following the insertion of a filling. The protection afforded the dentine immediately produces an alleviation of the irritation, and many times in the removal of fillings we are surprised to find such densely hard dentine exposed, which is defensive action of the pulp for its own protection. We must allow then that dentine under these circumstances has the power of recuperation, depending upon organic principles and general conditions localized in the pulp.

When we come to the pulp we begin the consideration of some of the most highly organized tissue in the whole economy and within whose realm reaction is most decided and prompt. Immediately following any irritation to this organ there is a call for more blood, in accordance with nature's laws, by which she intends to furnish more material for resistance. After resolution of blood to the part comes inflammation, and the blood-vessels become engorged and somewhat weakened by their effort to do so much work, producing odontalgia by pressure upon the nerves of the pulp confined, as it is, within unyielding walls of ivory.

This condition usually recovers very well under the influence of anodynes and sedatives, that is, they appear to do so, but the permanency of the recovery depends upon the length of time the disease has obtained and the individual recuperative power of the patient. After the pulp is reduced to an apparently healthy condition we are face to face with that ever-recurring problem of capping pulps, the success of which does not consist so much in the visual condition of the organ as it does in its relative pathological aspect. If the pulp is healthy and the capping is done in accordance with well-known scientific principles complete success may be expected. Why, then, do dentists who have been all through the capping experience finally give up the practice as a general rule and only perform the operation in exceptionally favorable cases and as a general procedure devitalize? Of course we may say that our experience teaches us that this is the safest practice, but what scientific reasons are there which produce results at variance with our earlier theories? One reason, usually mistaken, why they do not live under any covering than that provided by nature is that they are not healthy when covered up. If they are not healthy, in what condition do we find them? At the point of exposure and point of former irritation there is in all probability still a discharge of pus, indicating an effort of nature to close up the break in her ranks, or at least a discharge of serum easily degenerated. If now the discharge is limited to the ability of the power of the vascular system to carry away by absorption all may yet be well, but if sufficient space should exist for the accommodation of these products they will soon become a very decided irritant, or, if the capacity of the vessels is overtaxed, there is certain disaster, and recuperation is not to be expected. Disappointments along this line come thick and fast. Pulps are very obstinate things; when you desire to save them they invite you by many pleasant smiles, and we smile to ourselves in congratulation of having discovered the key to unlock their confidence, but by the time we assure ourselves that we are master of the situation they seem to have dropped us in cold indifference, and we cast about us for consolation in approaching death. We find comfort—a mite cool—in the fact that the tendency of all pulps is toward extermination. Other things being equal, a pulp would rather die than live. After maturity of a tooth of course there is not the necessity for the preservation of the pulp that existed previously, nothing seeming to demand it recuperative power. Nearly all recuperative power is lost with the death of the pulp.

To understand the tendency of pulp to die let us follow their course of development. First, we have all pulp, then a shell of deposited inorganic material at the periphery, gradually calcifying from here toward the center, and coextensive with this process is the reduction in sizes of the pulp until at mature life it remains a comparatively small organ occupying the central portion of the crown and root. After complete calcification has taken place there seems little use for it except to bestow its power of recuperation in case of disease or accident, as the gradual reduction in size is accompanied by gradually diminishing function. Some have said that the pulp is no longer needed after maturity, but I think that its value as a health maintainer is sufficient to save it, whenever that can be done. There is always plenty of time to devitalize after a pulp will not live. Quite often the recuperative function is sufficient to bring about a state of health in the root after a portion is dead and amputated. The attenuated shape of the root portion is favorable for this, but I am of the opinion that the results will not justify the practice to any extent. Our patients expect from us usually more permanent work than we can expect from preserving stumps, and we must keep in mind that the recovery of pulps is generally temporary in its character, and considerable allowance must be made in prognosis. Sedatives may restore a pulp to the nomal condition if the inflammation is of recent origin, but it is apt in more aggravated cases to show a steady decline, and at the least irritation at a subsequent time give up life entirely, though you have put an abiding faith in it.

In irritations of the gums and periodontal membrane from the deposit of salivary calculus it is remarkable what a contrast is presented in recuperative power to that of the pulp, as it is well known with what rapidity inflamed and ulcerating surfaces of these tissues will subside after removal of the irritant many times without further treatment. And in all diseases of the gums and membrane due to local causes nature only needs a chance to do her repair work, and when this is afforded her she makes rapid strides and does all and more than we could well expect.

It has been authoritatively stated by the originator of implantation, Dr. Younger, that he has had under his observation an implanted tooth that has the attribute of "sensitiveness" when touched by an instrument. This seems at variance to all our understanding of an implanted tooth which may have been out of the mouth for a sufficient time to have completely dessicated the tooth and adherent membrane. A tooth out of the mouth for some time must be dead—so dead that it cannot be resurrected; neither can the dead membrane come to life again; that is out of the question in my mind; I mean the identical tissue that once was dead; I do not believe that the recuperative power in the most favorable cases can approach to this length. Though I have seen no explanation of the return of sensitiveness in the implanted tooth reported by Dr. Younger, it is clear to me how such a condition may be brought about.

You know about the sponge graft, how new tissue may be rapidly produced and extended, in which granulations are induced to rapidly flow in and fill up the graft, using the sponge as a matrix. Now the sponge is never removed, except as nature cares for it and removes it through the circulation by absorption; but we do not think the sponge is left in place as a sponge, nor do we think that the sponge as such is created into live tissue. We believe that nature is able to carry away atom by atom in her mysterious way every particle of sponge according to her necessity, and replace it cell by cell with vitality in a manner corresponding to that of petrifaction. When wood is petrified the wood does not turn to stone, as we thought in our boyhood days, but each tiny atom as it is dissolved out is replaced by an atom of silica, which is to all appearance of form the structure of wood it always had been, but in fact they are cells of an entirely new material built in the same matrix. In the implanted tooth we are instructed to choose a tooth with a fair share of periodontal membrane adherent to the root as a necessary qualification for success, and left to infer that the membrane comes to life again. It does this in appearance, but, as this result is not reasonable to me, I believe that it forms the matrix for a new periodontal membrane in the same manner that the sponge does in the graft, and is not revived to life again, but is replaced by a new tissue vitally formed. I see no reason why this should not be true, and that even the dental tubuli or the uncalcified portion of the cementum could not be penetrated by live matter capable of transmitting to the nerves impression in a relative manner to which it is conveyed by the protoplasmic substance originally occupying the same dental tubes I see in this theory an effort of nature to extend her power of recovery to original conditions made favorable by science, though it reaches beyond our usual expectations. Accepting this we can easily see even in the absence of a pulp how sensation could be conveyed through the tooth substance to some of the many nerves reflected at the dental ligament. An analogous condition you may have noticed many times when a live pulp has been removed is there is still sensation along the sides of the canal conveyed by the many fillaments penetrating through the dentine and cementum making connection with the periodontal membrane. However, this usually disappears after a day or two on account of the death of the connecting substance, especially if the canal is dressed with a medicament that would tend to destroy it.

In alveolar abscess the tendency of the surrounding tissue to rapid recovery is well known. In the usual cases the removal of the cause of disease is all that is necessary, and in the unusual cases perhaps persistent treatment and occasionally the removal of necrosed bone, but this latter is very rarely necessary considering the large number of cases presenting. The remarkable thing about alveolar abscesses is that nature is particularly tolerant of them, and very often carries them along for years without any very alarming effects when, if situated in other parts of the body the condition would immediately become serious.

In closing I will say that I have made no effort to exhaust this subject, but only an attempt to bring before you a few of the most prominent points that have claimed my attention at various times, and will here submit a recapitulation of my conclusions that you may get them in a few condensed statements:

First. Enamel has no recuperative power, and all loss of tissue must be restored artificially.

Second. Dentine has no recuperative power, so far as the restoration of lost tissue is concerned, but does possess such from a defensive point of view, and may recalcify softened tissue.

Third. Pulps have recuperative power, but,

Fourth. The tendency of all pulps is toward extermination.

Fifth. The periodontal membrane and contiguous tissue have remarkably strong recuperative power.

THE DENTIST: HIS RELATIONS TO HIS PATIENTS AND TO HIS BROTHER PRACTITIONERS.

BY DR. C. S. LANE, OAKLAND, CAL.

[Abstract of paper read before Oakland Dental Club.]

I HAVE always been inclined to think that generally a lawyer in his zeal for his client, or to carry a point in law, forgets for the time being, at least, that he is both a *man* and a *citizen*, and that he owes something higher both to himself and to his neighbor.

I hold that it is greater and more noble to be a *man* than a genius: the more of a man the higher the possibility of his professional genius.

Then it follows that the better a man is the better a dentist he may be. The essentials are honesty, integrity, industry, carefulness and cleanliness. His family name, his social distinctions, his early educational opportunities all may help him, but none will take the place of honest, earnest effort, every day, everywhere and in every particular.

It does not follow that a man in order to be a good dentist should neglect his duty to his country or the political or social life around him, and especially to his own family. He may discharge all these duties and obligations well and faithfully and be all the more a conscientious dentist for having done so. Generous, honest-hearted, earnest men are the best anywhere; the dentist is no exception. It does not follow that a dentist should always be solemn and severe, for the longer we live the more we should admire the pleasant and cheerful side of life. Men work longer in life's work and are more agreeable to their patrons, their families and themselves by maintaining a cheerful heart and a bright eye.

The dentist in this age of the world must be a student of whatever pertains directly to his calling, whether it be the text-books or the journals giving the thoughts and modes of others, whether in college chairs or in the busy ranks of practice; and he cannot without loss to himself neglect the association with others of his work, both professionally and socially. The dentist should know himself; he should set a high standard, physically, scientifically and morally, and strive to live up to it. His office and instruments, his person and his morals must be clean.

I owe it to myself and my patrons that my rooms should be attractive, neat and well-ventilated; that my instruments shall be clean—and that means not only presentable but sterilized, so as to be perfectly safe to use in any other mouth; and that my presence be agreeable; that no wretchedly foul catarrhal odor from the breath shall be thrown into the face of the patient; in fact, I believe if a dentist has a nasal or pharyngeal catarrh which cannot be so far ameliorated that his breath shall not be tainted thereby, he should abandon his chair-work. The body should be well bathed, the nails and hands kept perfectly clean, and no hint of tobacco or whisky should be found on the breath or clothing.

Dentists too frequently acquire indolent habits; office life is dull and prosy. Better shorten hours of business and take air and exercise for the recuperation of bodily and mental vigor. Interest yourself in something outside your office routine, that will not altogether divert attention and effort from the lifework, but which will more fully fit the body and mind to successfully cope with the duties of your profession.

The same law that requires us to be true to ourselves requires us to be true to our patients, as worth and nobility of character always react, enriching others as well as the possessor; hence, if we are what we ought to be, and what we may be *in ourselves*, we are so much the more to our patrons. For it cannot be too strongly emphasized that we must first of all have our own respect and consciousness of worth if we would win the respect and confidence of our patients. We may not be brilliant or win glory of men; but our own respect is worth more to us than all the flattering eulogies that men can receive who at the same time in their own breast have a conviction that they are hollow, craven and dishonest.

The dentist is a servant. The term may be distasteful to some; but he who is above service for his fellow man is below the stature of manhood; to serve our race well is the highest honor to be coveted by mankind. Therefore, in our dealings with our patients, let our first idea be that of the highest and best service; and here we are master as well as servant, for we should not only serve, but we should know what kind of service will best meet the case, and be prepared to render that service regardless of the ignorant or mistaken notions of our patients. I am only sorry for the man who will sacrifice a valuable organ to gratify an ignorant and impulsive sufferer for fear he will let slip a paltry dollar, which may possibly drop into the pocket of some unscrupulous knight of the forceps. Better a thousand times say "No!"

The struggle for gain enters so largely into all our work that many, if not all, of the nobler, more kindly virtues are suppressed as only fit to be exercised by philanthropists or religious cranks. The professions have tried by their ethical teachings to sterilize their ranks of much of its foulness, but the imagined needs of man are such that to possess them he turns a deaf ear to fraternal feeling.

An important question in our fees is: Shall we have a uniform fee for our time or for the operations involving ordinarily a certain amount of time and skill?

The dentist is often called upon to serve without remuneration; when this is the case he should render that service with all tenderness and thoroughness, and take his reward in the consciousness of having benefited a fellow-being. However, the cheap-john quacking individual who fixes a twenty-five or fifty-cent rate for extracting, and a dollar for fillings, and perhaps nothing at all for treating, with plates from five to ten dollars each, is simply degrading a noble profession. There are many people who are indiscriminating and simple enough to think that a filling is a filling whether it costs one dollar or ten dollars. So long as they are relieved of present suffering they make little account for the future consequences.

Not many weeks ago a patient came to me with neuralgia, which had continuously destroyed her rest for nearly three weeks previously. She had all this time been under the care of one of those kind of dentists, had a number of fillings inserted, such as they were, and one good tooth extracted from the left side of the mouth, hoping thereby to relieve the pain in the nerves of the face on the right side. How is that for science? I found an exposed and badly inflamed pulp in a bicuspid on the right side, each side of which the operator had inserted fillings, carefully avoiding this tooth, telling the patient it was a dead tooth. I saved the tooth and made it useful, but sacrificed the pulp.

Now, I maintain, such conduct and such dentists fail so far of coming up to the standard in themselves and towards their patients and the profession that they are simply parasites which we should brush off if we possibly can. The general good demands that such disgraceful conduct should be punished.

It is a notable fact that every cause and enterprise of the present day can only prosper and be successful by union and consolidation; single-handed enterprises are, as a rule, a failure. As I understand it, we are now building up a distinct profession which is young, vigorous and progressive, though not yet perfectly understood and appreciated by the public. We are bound to organize and unite our sympathies and energies to uphold and advance dental science, even if it should cost us a little personal sacrifice.

CORRESPONDENCE.

TRICHLORACETIC ACID.

EDITOR PACIFIC COAST DENTIST: During the current year I have had repeated opportunity to treat cases in which the gum tissue overlying slowly erupting wisdom teeth was swollen and painful. These cases I have treated by applying trichloracetic acid to the tender gum once every three or four days till the trouble was relieved. In every case thus treated the most satisfactory result has been achieved.

D.

REPORTS OF SOCIETY MEETINGS.

THE SAN FRANCISCO DENTAL ASSOCIATION.

THE San Francisco Dental Association held its regular monthly meeting at the rooms of the Dental Club, corner Post and Stockton streets, Monday evening, December 10th, with President C. E. Post in the chair.

Dr. W. B. Stephens read a paper entitled "The Eye: Its Accommodation and Refraction."

A vote of thanks was tendered the essayist for the paper.

Dr. L. Van Orden exhibited a solution of white gutta-percha in petrolatum (vaseline) for filling pulpless root-canals.

The exhibitor stated that he had been using the solution for some time with happy results; that he was in the habit of dissolving white gutta-percha in the softer variety of vaseline and using it with the copper or gutta-percha canal-points, and that he frequently incorporated iodoform or other medicaments with it, and believed that by this method he secured a "continuous medication."

NEVADA STATE DENTAL ASSOCIATION.

THE dentists of the State of Nevada met at Reno, Saturday, November 3d, for the purpose of organizing a State association.

Dr. C. C. Conwell, of Virginia City, was chosen President, and Dr. D. W. Rulison, of Reno, Secretary.

Papers were read and discussions participated in. The President entertained the members at a banquet in the evening.

The Association will hold its first annual meeting in Carson City during January.

The prime object of this meeting was to take initiatory steps toward securing the passage of a dental law at the next session of the Legislature.

Dr. C. C. Conwell was at one time a resident of San Francisco, and in the office of Dr. Thomas Morffew. The members of the Association are to be congratulated upon their choice for President.

STOMATOLOGICAL CLUB OF CALIFORNIA.

[The name of the San Francisco Dental Club has been formally changed to above.]

THE Stomatological Club held its regular weekly meetings at the club rooms, 235 Post street, Tuesday afternoons and evenings, November 6, 13, 20 and 27th, and December 4th.

MEETINGS OF TUESDAY, NOVEMBER 6TH.

Clinic.—Dr. J. E. Cummings. Adjusting a porcelain shell-crown upon an undeveloped superior lateral incisor.

DISCUSSION.

Dr. A. F. Merriman Jr.—The operation was admirably performed. I would suggest that all preparation of the tooth be completed before the impression is taken.

Dr. Greenlaw.—I find it always necessary to adapt the shell as perfectly as possible before baking on the porcelain. I have recently adjusted quite a number of gold crowns with shell-jackets. The patients have seemed pleased, and I believe they will do good service.

Dr. Russell H. Cool.—This is certainly the very best means of disguising the syphilitic and undeveloped tooth and still retain its vitality.

Dr. Lundborg.—I can only add to what has been said that I would have covered the palatine surface of the shell with porcelain to give the lateral surfaces more strength.

MEETINGS OF TUESDAY, NOVEMBER 13TH.

Clinic.—Dr. Max Sichel. The insertion of two fillings: the first in the distal and occlusal surfaces of the right inferior first bicuspid; material, Sichel's enamel cement; the second in the mesial surface of the right inferior second bicuspid; material, Sichel's white alloy.

DISCUSSION.

Dr. Guisti.—I have found Dr. Sichel's enamel cement an excellent preparation. It hardens in about ten minutes so that a knife makes little or no impression upon it. While I was a student in Dr. Younger's office I used some of his cement in a case in which I was unable to adjust the rubber-dam on account of the extreme nervousness and sensibility of the patient. I inserted a number of cement fillings in her teeth at that time; saw her but a few days ago and was surprised to find a majority of them remaining.

Dr. Russell H. Cool.—I have great faith in this cement of Dr. Sichel's, and intend to use it in my practice. I understand it may be purchased from him.

MEETINGS OF TUESDAY, NOVEMBER 20TH.

Clinic.—Dr. Thos. Morffew. Gold contour filling in right superior central incisor—restoration of the incisal surface; material, Rowan's decimal and William's cylinders.

DISCUSSION.

Dr. Merriman Jr.—I approve of tying a knot in the ligature, as Dr. Morffew did; it very materially assists in holding the rubber-dam in place. I also approve of oiling the disks and sandpaper strips used, as such a precaution unquestionably does away with much unnecessary pain, which is directly attributable to the heat engendered by friction, but I do not approve of permitting the first few gold cylinders which are inserted in the cavity to overlap the marginal angles. The risk run is too great. I believe it is impossible to avoid some injury—more or less, often more—to these margins when they are thus covered with the gold; and in my opinion the margins should not be lapped until the process of filling the cavity has reached the surface of the tooth proper. This, I think, especially so when the automatic plugger is used. I would further criticise the operation on the position the bur was held. There is no question but that the attempt to make the end of the bur do the work the sides are intended for is a mistake, and much unnecessary pain created thereby.

Dr. Russell H. Cool.—I heartily agree with the operator in the use of oil or vaseline on the disks or tape. It not only prevents unnecessary pain, but the disks and tape cut much better and faster. If there is any one present who has not taken advantage of this little point I say try it and you will never be without it.

Dr. Sichel.—In the use of the automatic plugger I am of the opinion that the best results of the blow are obtained by removing the point from contact with the filling material as soon as the blow is struck. If the point is permitted to remain at rest in contact with the filling I do not believe the blow is as efficient and the metal as thoroughly condensed.

Dr. Morffew.—The filling I was asked to insert is only an ordinary one. I would have preferred a more complicated cavity, but it was not to be had. I expected to be criticised on the size of cylinders I used, but no one has seemingly noticed that. I believe the cylinders should be as near the size of the cavity as possible, and if there be any difference they should be smaller instead of larger. Those I used were entirely too large. As to my use of the bur, I am aware that more pain is to be expected if the end of the bur is used; though this is not strictly so if the "Revelation" bur is employed; but this seemed almost devoid of sensitiveness.

MEETINGS OF TUESDAY, NOVEMBER 27TH.

Clinic.—Dr. Clyde S. Payne. Insertion of a restoration contour filling.

DISCUSSION.

Dr. A. F. Merriman Jr.—Dr. Payne's clinic upon the insertion of large restoration contour gold filling, occupying the entire distal, a portion of the disto-lingual, disto-buccal and occlusal surfaces, was indeed a nice piece of work and quickly accomplished. I would, however, criticise his preparation of the cavity, as I do not feel that he secured sufficient retention for so large a filling. I would have cut out the fissure by all means and dove-tailed into the buccal and lingual cusps for greater strength. I noticed that the clinician ceased malleting the filling after having placed in all the gold before he had the last few pieces thoroughly condensed and found that his object was to burnish this down hard. The effect of such procedure I believe to be good, and it certainly adds very materially to the general appearance of the filling when finished. It gives the operator an opportunity to burnish the gold nicely to the margins.

Dr. Levkowicz and Dr. King also criticised Dr. Payne for not cutting out the fissure.

Dr. Cool spoke of imperfect gingival margins generally.

Dr. Hart commended the Jacks matrix.

Dr. Millberry (the patient) complimented the clinician on the rapidity of his insertion of the gold, and the ease with which he worked.

Dr. Payne.—In answer to the criticism made by several I will say that I did not excavate the fissure because it was not decayed. If the patient had been young I would certainly have cut out the fissure promptly. I do not believe there will be a recurrence of decay at that point, and I further believe, as I believed at that time, I have sufficient anchorage without it.

PATHOLOGICAL CASE PRESENTED BY DR. GUISTI.

In explanation the following history was given: The patient had been suffering about a year with recurrent alveolar abscesses from a devitalized left lower first molar. He sought the services of a certain uptown quack for its removal, who failed to remove the refractory molar. He applied to a second farther down town, but of equal incapacity, who fractured the crown from the roots and failed to do other than loosen the second bicuspid after repeated trials under three different administrations of nitrous oxide. When the case was first presented to the Doctor the surrounding tissue was very much tumefied, and there was a fistulous tract leading from the abscess and opening on the cheek. Dr. Cool extracted the roots by means of the dental engine and elevators.

MEETINGS OF TUESDAY, DECEMBER 4TH.

Dr. A. H. Millberry presented a case of unilateral hypertrophy of the face. The patient, Gustave W., aged thirty-one, born in New York, of German parents, and the eldest of a family of eleven children. There was no accident during the pregnancy, and the patient was born at term without aid of instrumentation. There are no other deformities in the family.

The patient has a pale, "café-au-lait" complexion, is stoutly and, with the exception of his face, symmetrically built, and enjoys good health; has never had any other severe illness nor received, to his remembrance, any severe blow upon or contusion of the head, nor has he ever suffered from neuralgia. There is a deep-sunken scar on the left cheek over the inferior maxilla, the result of an abscess that formed at the age of eight or nine years. His mother says that much pain attended the expression of the contents of the abscess, but further than this there is no recollection of any pain or neuralgia. The first sign of the disease noticed was an enlargement of the gums at ten years of age. The deformity of the face was first noticeable at twelve years, and has been steadily growing more marked ever since. The deformity is all included in an irregularly quadrilateral figure bounded by a line starting on the top of the head at the anterior extremity of the sagittal suture, running downward and forward along the middle of the forehead, and so on down the nose to the lower border of the chin, then from the chin upward and backward along the lower border of the inferior maxilla to the tip of the left mastoid process, and thence upward to the point of commencement. The supra-orbital, malar and mental regions show the most marked hypertrophy. At these points the soft tissues are raised up in large tumefied masses, and the bones themselves can be felt to form part of the deformity. Some idea of the amount of the enlargment of the face can be formed by stating that the distance from the philtrum to the tragus is six and one-eighth inches on the left side, and only four and seven-eighth inches on the right. The inferior maxilla is enlarged and roughened from the symphysis to the middle of the body; thence backward it seems to be normal.

The teeth are very good and not hypertrophied, but the left superior alveolar process, with its gingiva, is immensely enlarged. The gum is enlarged, both internally and externally. The enlargement of the external surface begins at the right border of the right central incisor, and bows away out forward under the upper lip which is stretched tightly over the alveolus when the patient laughs. This part of the gum is very rough, and there is a good deal of white epithelium on it. There is a rough projection on the anterior surface of the lower gum to the left of the median line. The hard palate behind the front teeth is a good deal more ridged than normal. Laterally the hypertrophied gum projects as an immense tumor into the mouth. The left third and the second molars are outside the line of articulation, and probably on this account have fallen below the level of the others on the superior jaw. Dr. Millberry extracted the first upper molar sometime ago, and at that time the second upper bicuspid and all three molars were entirely covered by the hypertrophied gum, the Doctor removed this covering in large lamellæ without much pain or bleeding. The patient had never seen these teeth till then.

That the case is progressive there can be no doubt; all the evidence that has been gathered has been affirmative of that point. It seems equally certain that it is not a congenital case, and in this it differs from nearly all other cases reported.

General discussion from all the members followed, in which all approved of Dr. Millberry's extraction.

At this meeting the organization perfected its incorporation as the "Stomatological Club of California," and adopted a suitable constitution and by-laws for its guidance and conduct. The following members were elected as the Board of Directors: Drs. W. J. Younger, Russell H. Cool, Thos. Morffew, S. E. Knowles, A. F. Merriman Jr., L. A. Teague and J. A. W. Lundborg, and from these the following officers were chosen:

President	Dr. W. J. Younger.
Vice-President	Dr. Russell H. Cool.
Secretary	Dr. S. E. Knowles.
Treasurer	Dr. Thos. Morffew.

The membership was limited to fifty, and the initiation fee raised to $20.

DELTA SIGMA DELTA.

THE Delta Sigma Delta Fraternity gave their first annual ball in Maple Hall, Palace Hotel, Thursday evening, December 14th. The entertainment was taken in hand almost entirely by the undergraduates, who composed the following committees:

Arrangements.—E. P. Halsted (chairman), '95; W. A. Atwood, '95; J. A. Brown, '95; L. W. Fisher, '96.

Floor.—W. E. Singleton, '95; G. E. Bennett, '96; L. Greenbaum, '96.

Reception.—H. H. Stephenson (chairman),'95; R.L. Hale, '95; J. R. Hardy, '95; R. M. Harlan, '96; Montgomery Thomas, '96.

The floor management was genially and exceptionally conducted by Dr. William F. Sharp.

The boys entertained their guests grandly; the number was just comfortable for dancing, and everything that could be thought of was done to make the evening enjoyable.

EDITORIAL.

IN REVIEW.

AS profitable as it is for us to review the past months and years of our lives, in whatever course, such a retrospective analysis is only enjoyable in proportion as the element of success spices its memory. That there is, however, more to be learned in recalling the reasons of our failures and the results of our conscious or unconscious failings we cannot deny.

It is not our purpose to here prolixly discuss the miscarriages of the plans of the profession in its associational and educational work, nor their common cause, the failings and shortcomings of its members; but, with a desire to stimulate more concerted and harmonious work, we cannot conscientiously point simply—with the usual "pride"—to what has been accomplished and eschew the value of our opportunities for doing better. We take it that the profession on this Coast, while young, is not so infantile that it needs flattering comments of encouragement in lieu of sincere and impartial criticism to keep it in good behavior.

The past twelve months have been the best in the history of the dental profession on the Coast, and few localities have ever done more, if as much, for the advancement of our calling. In this fact, however, we have no more reason for rejoicing than we have for weeping that those which preceded it were not better. That this year has been what it has been is only due to the fact that those who were in position to do partially did their duty. The failures which entomb the historical corpse of the many which preceded it are but evidence of the ignorance, self-contentedness and selfishness which made them so. If the ensuing year is not *more* prolific of good than the one now closing we shall be guilty of retrogression. If we have been ignorant, we have now learned how we may be educated and benefited; if we have been self-contented, we have had ample opportunity to observe our incapabilities and mend them; if we have been selfish, we have seen its grossness and may repent; and if we do not improve the experiences that the past year has afforded us we deserve neither progress nor prosperity.

Our associational work is truly a part of a great and commendable educational scheme, and as such it must necessarily keep pace with other departments of this work if we wish progression without deformity. We have located in our midst a professional educational institution second to none the world over. That this is due to the zeal and indefatigable energy of its promoters is self-evident, and that it will be progressive and prosperous in its determined advancement will also be conceded. We are moreover endowed, as are most other States and localities, with professional organization of an associational nature, both State and local. What of these? The State Association seems in a fair way "to be or not to be." Out of the nine hundred practitioners in California ten per cent. have considered this organization of enough importance to become members, one of three of whom takes sufficient interest to attend its annual meetings. What is the matter? The reply is stereotyped: "It is the duty of every practitioner to identify himself with the State society." And that is true; but it is more emphatically true that it is the duty of those who have undertaken the conduct of so important a part of this educational system of our profession to make it *worth* identifying one's self with.

Last year several local societies were organized. What has become of them, and what is the reason they have not kept up regular meetings—if meetings they have held at all?

The San Francisco Dental Association has always been the mainstay and financial patron of all other kindred organizations, but, from an impartial observance, if its officers are not more energetic in making its meetings more interesting it will become a pauper.

Contemporaneous with the Congress another organization was effected. That it is successful we need only to say that members are willing to pay well for its privileges and give up an afternoon and evening a week to be present. That conservatism is not the policy of this organization is evidenced in the fact that, notwithstanding it bid fair to do a greater work than the Congress itself, and pre-eminently greater than any other like undertaking had ever done, and while its success was just being assured, it assumed another control entirely experimental, if not dangerous, to its welfare and continuance.

What the year yet to be born will develop, of course, is problematical and but conjecture, but we feel safe in asserting that if *self* be made less prominent, and the interest of the profession be made more the aim of organization, much good will await another review.

TO THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

IN 1891 the California State Board of Dental Examiners was asked to endorse a diploma from the Medical University of Ohio (Dental Department) and refused. An attempt was then made to compel the action, which also proved futile. The owner of this machine-made diploma then went East and was admitted by virtue of his graduation from the above-named college (which, by the way, did not exist) into the senior class of the American College of Dental Surgery in Chicago. At the expiration of his senior year he was graduated and, returning to California, asked that the diploma from the American College be endorsed as satisfactory to the California Board. The endorsement was, after due investigation, refused.

The California Board forwarded to the National Association of Dental Examiners at its meeting at Old Point Comfort, in August last, a complete history of the case, together with the most important evidence which was in its possession. This evidence consisted of letters from the Deans of the Medical College of Ohio, Ohio College of Dental Surgery, Secretary of Illinois Board of Health, Dr. Fred A. Levy, Secretary of the National Association of Dental Examiners (1891), the "Report of the Illinois State Board of Health," and a full page (illustrated) exposé of the fraudulent institution in the Cincinnati *Commercial-Gazette* of November 15, 1891, entitled "Machine-Made Diplomas," and asked the Association to take some action on the matter and advise the Board what was best to do.

Weeks passed and the Board was forced to defer action upon the diploma from time to time, awaiting the report of the action of the National Association of Dental Examiners. The Secretary was finally sent a proof copy of the proceedings of the National Association of Dental Faculties, instead of the Examiners, and some time subsequently the evidence, which had been submitted, without any note of explanation other than that the Secretary of the N. A. D. E. was much hurried to get out of town for his annual vacation. It was afterwards ascertained through the October pages of the journals that the matter had been ignored—at least, no reported action was found in the proceedings or sent by the Secretary to the California Board. The American College threatened to mandamus the California Board and compel it to recognize the College diplomas, which it had refused to do on account of this affair; but the Board, feeling assured of the justice of its refusal, reported the history of the matter to the American College and continued to refuse its endorsement. The officers of that institution finally investigated the matter in Cincinnati for themselves and were convinced that the action of the California Board was a just one. So the matter stands up to date.

What the California Board most desires to be made acquainted with now is why the National Association of Dental Examiners so neglected its duty in this matter? What is the attitude of this organization toward the various State Boards, and what is the purpose of its organization if it is not to comply with just such similar requests? The matter was purposely forwarded to the annual meeting that a thorough investigation of this college might be had and proper steps taken to avoid a dangerous precedent. While the California Board recognizes that no action of the National Association can assume a legal status, or in any way bind the various State Boards to any certain action it may take, yet it has a right to ask and expect good, sincere and prompt counsel. It is only right that the profession should be made acquainted with these facts, and it is earnestly hoped that the National Association of Dental Examiners will see the importance of such matters and give them the attention they deserve.

THE LEEK CASE.

IN the October DENTIST it was editorially explained how J. J. Leek had attempted to force the California State Board of Dental Examiners to issue to him a license to practice dentistry in the State of California, by virtue of his having been in practice in said State on the date of the enactment of the dental statute, viz., March 12, 1885. Being non-suited in this it was further explained, at the same time, how he and his attorney, one George D. Collins, developed a scheme to marshal the forces of the non-licensed and by a combined effort secure a pledge of five hundred dollars, which amount was to be paid to said Collins within ten days after he had "had" the law "declared null and void."

In pursuance of this mighty scheme, on the 23d day of November J. J. Leek caused himself to be arrested on a warrant sworn to by one of his employees, O. C. Jenkins, charging him with a misdemeanor for having commenced the practice of dentistry in the State of California without first having secured a license from the State Board of Dental Examiners. The case was assigned to Judge Low, Department No. 4 of Police Court. On the day of Leek's arrest his attorney appeared before the Supreme Court and filed a petition for a writ of *habeas corpus*. In his petition he alleged that Leek was illegally deprived of his liberty by the Chief of Police of the city and county of San Francisco.

He attacked the Act of March 12, 1885, on constitutional grounds, but the Supreme Court was evidently of a different mind, for on the 27th day of November it refused to issue the writ of *habeas corpus*. The attorney was expecting such a refusal on the part of the Supreme Court, for on the same date an appeal was made to the court for a writ of error on Leek's behalf. The Court denied this on the date of the application. While the Supreme Court did not prepare an opinion declaring the Act of March 12, 1885, known as the Dental Act, constitutional, its action in denying the writs referred to amounts to the same thing, and we may consider that it has by this action practically declared the act constitutional.

When the case was returned to the Police Court, Leek, by his attorney, appeared and had the hearing continued until December 31st, and the Court admitted him to bail in the sum of fifty dollars.

It will be impossible for Leek to proceed any further in the State courts, and any remedy he may have from this date must be granted him in the United States courts. The fact that the Supreme Court denied both a writ of *habeas corpus* and the writ of error leaves him without further standing in that tribunal. Undoubtedly his object in applying for the writ of error was that the matter might be carried to the United States

Supreme Court. We have not learned whether he intends to apply to either this court or the United States Circuit Court of this district. It being certain that he can secure no relief from the State courts unless the United States courts comes to his rescue, which is not probable, he will be compelled to stand trial before the Police Court for practicing dentistry without a license.

It is really hard that so beautiful a scheme should be so ruthlessly thrust aside by the courts. This lack of appreciation of counsel's intellect is discouraging, to say the least. It is not frequent that men willingly set traps with themselves as bait, but when they do they deserve to play the part of the victim as well.

A New Dental Journal.—The prospectus of the *Dental Digest*, a new journal to be started in Chicago in the interest of the American Dental Protective Association and its ally, the Dental Protective Supply Company, is at hand. Its avowed purpose is to "furnish monthly in a condensed form a digest of the important matter of all dental periodicals published in the world," also, original matter, society reports, correspondence, etc. The first number will appear late in December for January, 1895. The new journal will be under the supervision of Dr. J. N. Crouse of Chicago.

BOOK NOTICES.

The Anatomy and Pathology of the Teeth. By C. F. W. Bödecker, D.D.S., M.D.S. Octavo, 676 pages, with 325 illustrations. Adopted by the National Association of Dental Faculties as a text-book for dental students. Philadelphia: The S. S. White Dental Manufacturing Co., 1894. Price, cloth, $5; sheep, $6.

An exceptionally valuable addition to any scientific library. It is the result of nearly eighteen years of the most faithful and thorough study of general and dental histology. As a pupil of Dr. Carl Heitzmann the author has, as he says, become thoroughly imbued with the conviction of the correctness of his views, which are distinctly antagonistic to the cell theory.

The first seven chapters are given up to the maxillæ and the teeth, and the eleven chapters following are devoted to general and dental histology, after the theories of the author's teacher. The subjects are admirably treated, and perhaps the only criticism that can be offered is that too much is expected of the average student in making such a work a text-book without an intermediate preparatory and elementary work.

The chapters devoted to pathology are exceptionally well presented and illustrated, though that upon general inflammation, eburnitis, ulitis, pulpitis, pericementitis and others, invite criticism, which no doubt the author expects and courts. Chapter XL is very interesting and instructive. In this the author gives the views of Frank Abbott and W. D. Miller; in the first, of "anti-bacteriological times," and the second, "founded entirely on bacteriological research." In Chapter XLI, entitled "The Effects of Arsenic Dioxide and Metallic Arsenic Upon the Pulps of Teeth," etc., some considerable attention is given to Dr. Herbst's method of treating amputated pulp-stumps with cobalt (metallic arsenic—E. C. Kirk). This, of course, is a novel procedure, but is only interesting as such—at least, such a practice will never be generally and favorably received. The concluding chapters are upon necrosis of the jaw-bones, empyema of the antrum, the clinical and anatomical features of tumors in general, tumors of the teeth, cysts in the oral cavity, tumors of the jaws, and malformations and malpositions of the teeth.

One of the most interesting features of this splendid volume is the fifty odd pages which the author in his admiration of thoroughness adds as references to the literature of the subjects treated in his book, naming the author, title of the paper, and when and where published.

The volume is neatly and substantially made, magnificently and generously illustrated—the artistic work of Dr. Carl Heitzmann. The text is clear and bold, and altogether its mechanical execution is just what one might expect from the S. S. White Dental Manufacturing Company—first-class in every particular.

Descriptive Anatomy of the Human Teeth. By G. V. Black, M.D., D.D.S., Sc.D. Third edition; illustrated; octavo, 162 pages and index. Philadelphia: The Wilmington Dental Manufacturing Company. Price, cloth, $2.50.

The profession generally needs no particular introduction to this now standard production. That a third edition has been published shows its wonderful popularity and permanent place in dental literature. It is the foundation of the dental student's work; fills a place that no other publication has ever done, and will long be the recognized authority on dental anatomy and nomenclature.

Its principal changes, as the author states in his preface, "will be found in the nomenclature," and "the reader will find the changes introduced limited to one new word, *axial;* two new word-forms, *occlusal* in place of *occluding*, and *incisal* in compound forms, and the completion of the systemization of the names of the angles of the teeth. Improvement has also been made in some of the descriptions, and a number of new illustrations have been added."

The work cannot be too highly commended for teachers and students, and the practitioner will find it invaluable as a work for periodical review. It is published in its same substantial perfection.

PAMPHLETS RECEIVED.

Zymosis and Pathogenesis. A Bacteriological Sketch. Part XI. Jas. I. Fellows. London: 56 Holborn Viaduct, E. C. 1891.

One of a series of monographs Mr. Fellows has been issuing for some time on various topics incidental to the therapeutical application of the remedy which bears his name.

Listerine. Lambert Pharmacal Company, St. Louis, Mo., U. S. A.

A pamphlet descriptive of the antiseptic, prophylactic and hygienic properties of this exceedingly valuable remedy.

PUBLISHERS' NOTICE.

TO OUR ADVERTISERS.

Although the Pacific Coast Dentist enjoys the distinction of being the only journal on the Coast devoted to dental interests published monthly, and while the publishers are assured in many instances that its advertising patrons have received substantial returns for their investment in this journal's pages, yet the business management feels that it wants it understood that it is anxious that its patrons are also satisfied that the Dentist is doing more for their money than sending in its quarterly bills. No enterprising and conscientious publisher will rest easily under an insinuation of a doubt as to the good his publication does for his patrons. He knows the value of his journal as a business medium depends upon the class as well as extent of his circulation, and he knows, further, that to obtain that desideratum he himslf must exhibit enterprise and also be an advertiser. That the dental profession of the Pacific Coast is progressive and is making rapid strides in stomatological science has been amply evidenced to the world during the year now closing, and nowhere else will higher appreciation be had of, and patronage be obtained for the best dental aids and appliances.

With the coming year the publishers of this journal propose to help answer the mooted question of "How to teach the laity the value and necessity of dental treatment" by publishing a supplemental monthly edition to be circulated in the leading hotels and resorts throughout the Coast. In doing this we shall add considerable to our publication expense, but with the faith of a true advertiser we know that we shall be doubly rewarded by the benefits to the journal and its patrons.

Wishing a prosperous New Year to our patrons, we particularly call attention to the unquestioned merit of all and everything found on our advertising pages, each and all deserving of special mention.

Hoping to merit continued and increased favors, we are

Yours thankfully,

THE PACIFIC COAST DENTIST.

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